OPS870 Series
Intel Open Pluggable Specification Box

User's Manual

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Safety Approvals

CE Marking

- FCC Class A

FCC Compliance

This equipment has been tested in compliance with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are meant to provide reasonable protection against harmful interference in a residential installation. If not installed and used in accordance with proper instructions, this equipment might generate or radiate radio frequency energy and cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following methods:

1. Increase the separation between the equipment and receiver.
2. . Connect the equipment to another outlet of a circuit that doesn't connect with the receiver.
3. Consult the dealer or an experienced radio/TV technician for help.

Shielded interface cables must be used in order to comply with the emission limits.

Safety Precautions

Before getting started, please read the following important safety precautions.

1. The OPS870 series does not come equipped with an operating system. An operating system must be loaded first before installing any software into the computer.
2. Be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and place all electronic components in any static-shielded devices. Most electronic components are sensitive to static electrical charge.
3. Disconnect the power cord from the OPS870 series before any installation. Be sure both the system and external devices are turned OFF. A sudden surge of power could ruin sensitive components that the OPS870 series must be properly grounded.
4. Make sure it is the correct voltage of the power source before connecting the equipment to the power outlet.
5. The brightness of the flat panel display will be getting weaker as a result of frequent usage. However, the operating period varies depending on the application environment.
6. The flat panel display is not susceptible to shock or vibration. When assembling the OPS870 series, make sure it is securely installed.
7. Do not leave this equipment in an uncontrolled environment where the storage temperature is below 0℃ or above 40℃. It may damage the equipment.
8. External equipment intended for connection to signal input/out or other connectors shall comply with relevant UL/IEC standard.
9. Do not open the back cover of the system. If opening the cover for maintenance is a must, only a trained technician is allowed to do so. Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:
   - Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This will help to discharge any static electricity on your body.
   - When handling boards and components, wear a wrist-grounding strap, available from most electronic component stores.

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MEMO:

CHAPTER 1
INTRODUCTION

This chapter contains general information and detailed specifications of the OPS870 series. Chapter 1 includes the following sections:

- **General Description**
- **Specification**
- **Dimensions**
- **I/O Outlets**
- **Package List**

1.1 General Description

Intel Open Pluggable Specification (OPS) Compliance

OPS870 series is based on the Intel® Core™ i7/i5/i3 processor with Mobile Intel® 7 Series Express Chipset platform and also future products. The Pluggable Module is targeted to provide an interchangeable solution to the digital signage media players with compatible connector. This document provides the module form factor, connector specification, reference thermal solution, and boundary conditions in order to ensure the functionally of the module in all compatible display panel system.

OPS870 series meets Intel Open Pluggable Specification for design and development, simplifying system upgrade maintenance for manufacturers and developers that supports not only Intel® 3rd Generation Core i family , Pentium Mobile, Celeron Mobile but also 2nd Generation Core i family processors (Optional) which is high flexible and user-friendly digital signage applications.

Easy maintenance

OPS870 series offers a best solution for digital signage market. Compliant with Intel OPS architecture, digital signage players are capable of deploying interchangeable systems faster and easing upgrading/maintenance, while lowering costs for development and implementation. Additionally, having the ability to simply slot-in and out the unique pluggable engine box makes daily hassle easier and faster for users.

OPS870 series has pluggable engine box design; you can change HDD, DRAM and CPU configurations more easily

1.2 System Specifications

1.2.1 Main CPU Board

- CPU

The OPS870 series has four reference solutions as CPU socket type. Customer can choose what they need.

- Intel®Core™i7-3610QEProcessor(6M Cache, up to 3.30 GHz)
- Intel® Core™ i5-3610ME Processor (3M Cache, 3.30 GHz)
- Intel® Core™i3-3120ME Processor (3M Cache, 2.40 GHz)
- Intel® Pentium ® Mobile Processor B950 (2M Cache, 2.10 GHz)

- System Chipset
  - Intel® QM77 PCH
- BIOS
  - AMI ® BIOS
- System Memory
  - One socket 204-pin DDR3 SODIMM 1066/1333/1600 system memory up to 8GB
- Wireless Module (Optional)
  - Optional IEEE802.11a/ b/g/n, Bluetooth 2.0

1.2.2 I/O System

- Standard I/O
  - One HDMI
  - Two USB ports 3.0
  - One Power on /Off button
  - One Reset button
- Ethernet
  - 10/100/1000Mbps Ethernet
- Audio
  - Line-out/ Mic-in

- Expansion
  - One PCI Express Mini Card slot is equipped for optional add on such as wireless LAN card (802.11 a/b/g/n connections, GPS, Bluetooth) or mSATA application.
- Storage
  - One 2.5''SATA HDD (7mm & 9.5mm) (Supports SATA3 6Gbps)
  - Support One mSATA
- Net Weight
  - 0.9Kg(1.99 lb) without cooler
- Dimension (Main Body Size)
  - 200 mm x 119 mm(D) x 30 mm(H)
- Operation Temperature
  - 0℃ to 45℃ (with airflow 1.2 m/s)

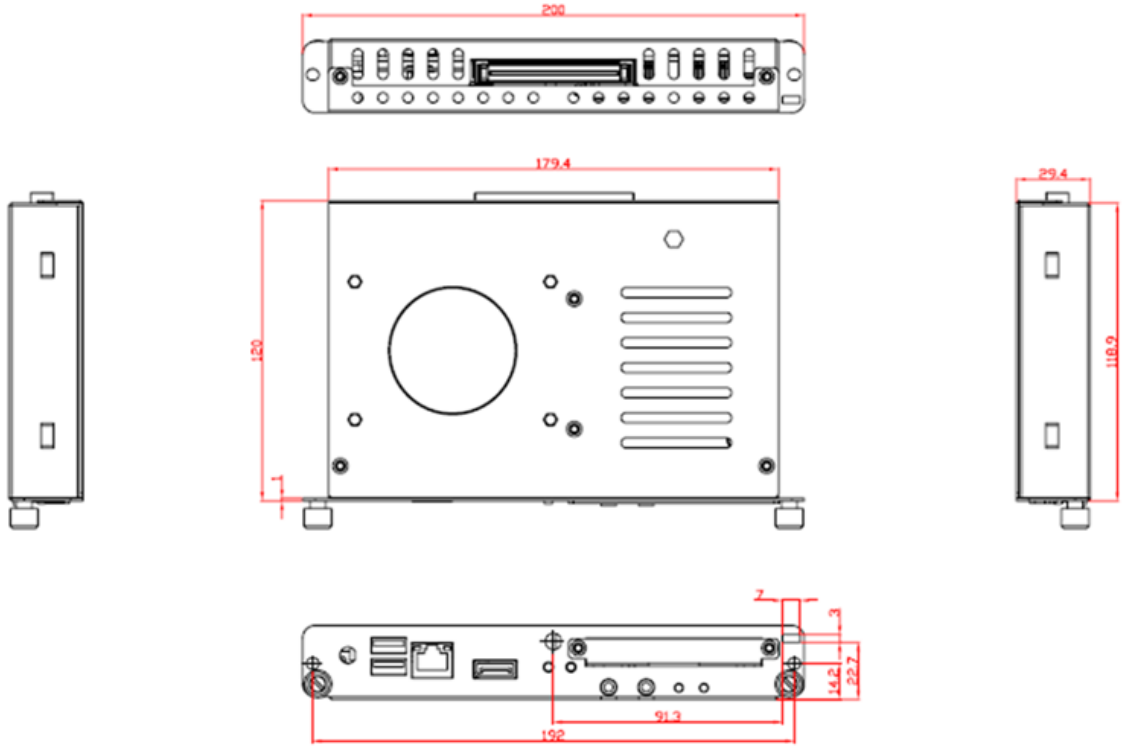
NOTE: All specifications and images are subject to change without notice.

1.3 Mechanical Assembly

1.3.1 Dimensions

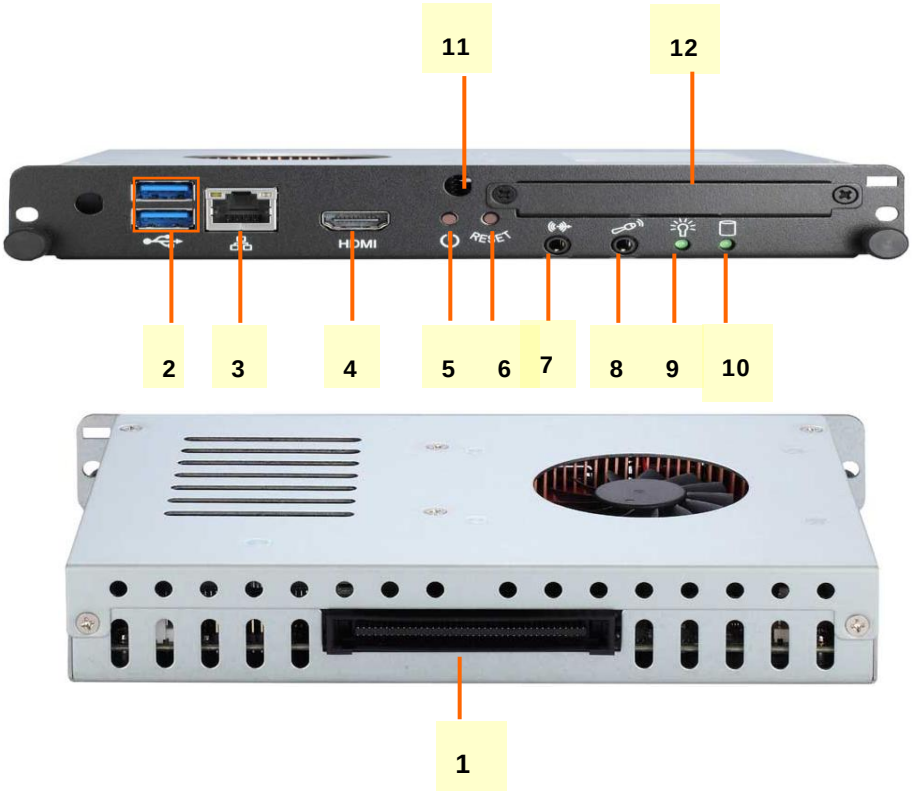
This diagram shows you dimensions and outlines of the OPS870 series

The overall dimension of the module including the mounting frame is 200mm x 119mm x 30mm and also shows the location of the front panel screw holes as well as the security lock.



1.3.2 I/O outlet

The following figures show you the locations of the OPS870 series I/O outlets.



No.	Connector	No.	Connector
1	JAE TX-25	**7**	Audio(Line-out)
2	USB 3.0 x2	**8**	Audio(Mic.-in)
3	Ethernet	**9**	Power indicator
4	HDMI Output	**10**	HDD indicator
5	Power Switch	**11**	Optional Antenna
6	Reset	**12**	2.5''HDD slot

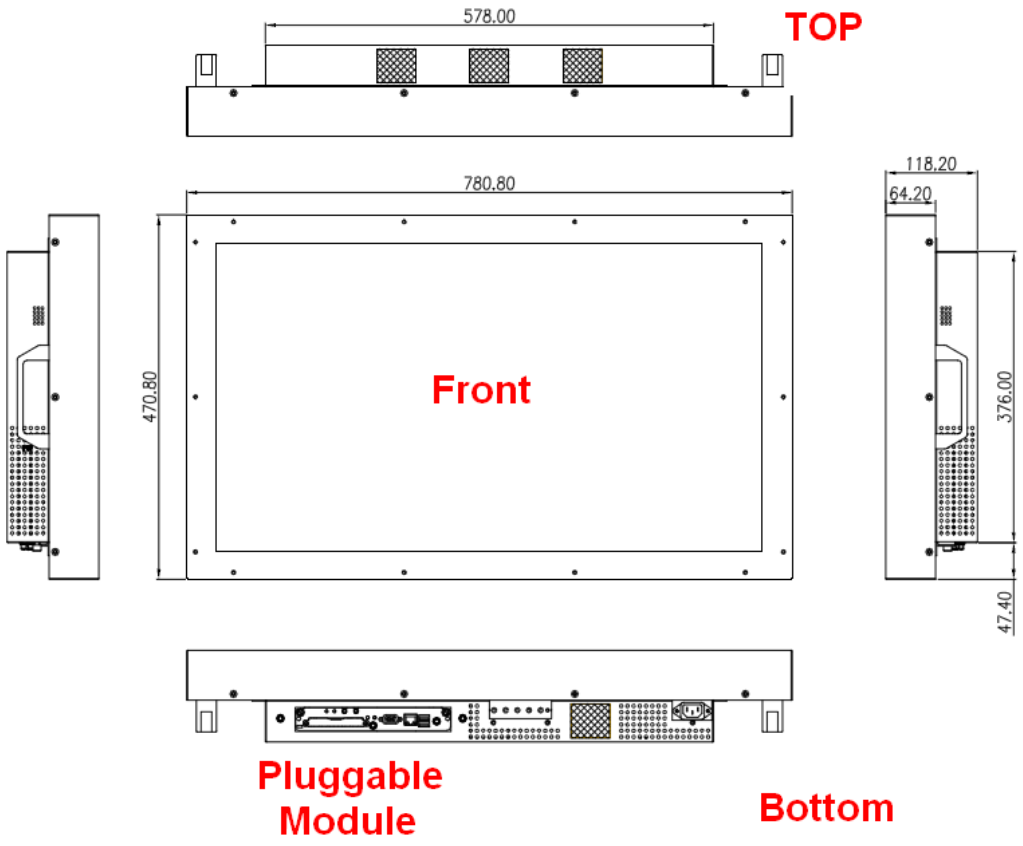
1.3.3 Mechanical Specifications

- OPS870 series is docked in the reference display panel

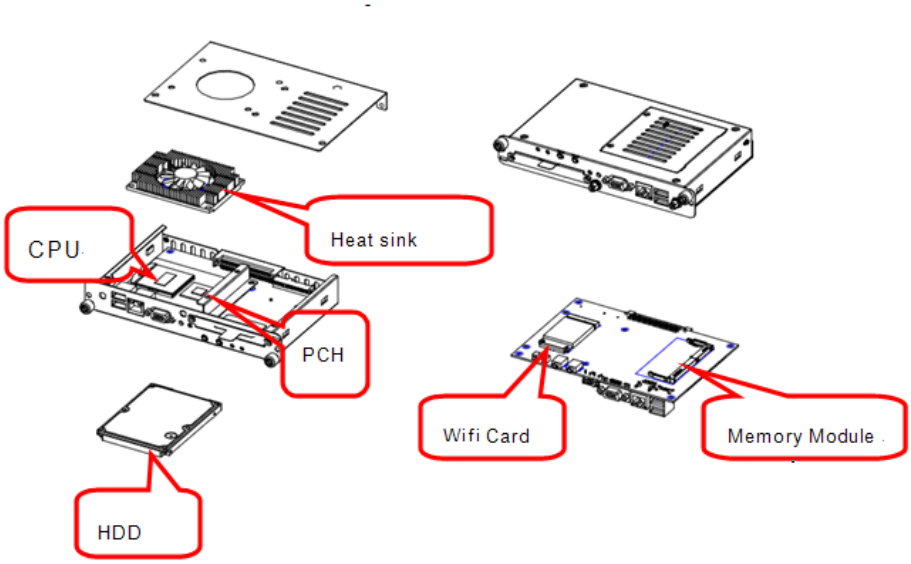
  The OPS870 Pluggable Module docked at a display panel system.

  In this reference design, the module is docked and undocked in the vertical direction.

NOTE: Please contact Axiomtek for available option display panel.

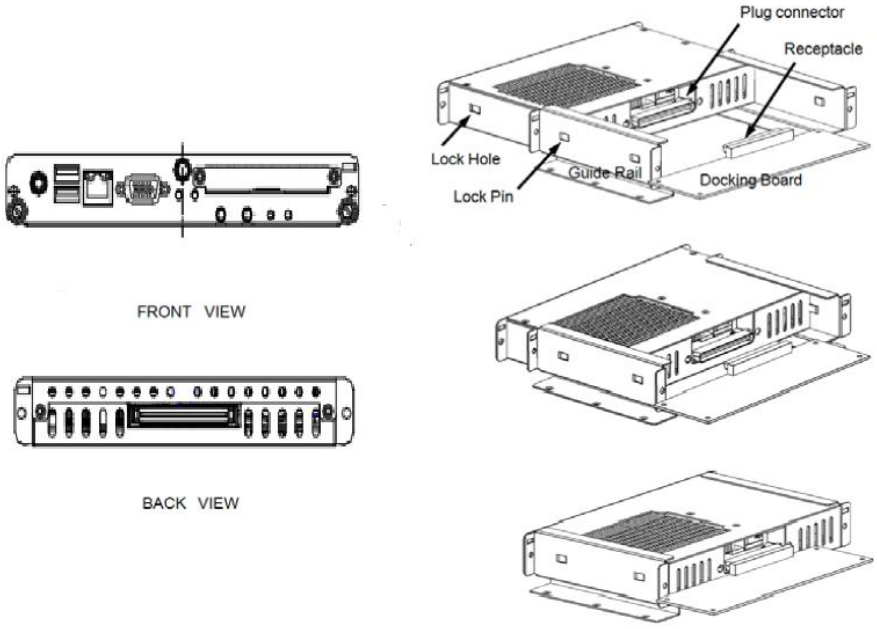


➢ Exploded View of the Pluggable Module

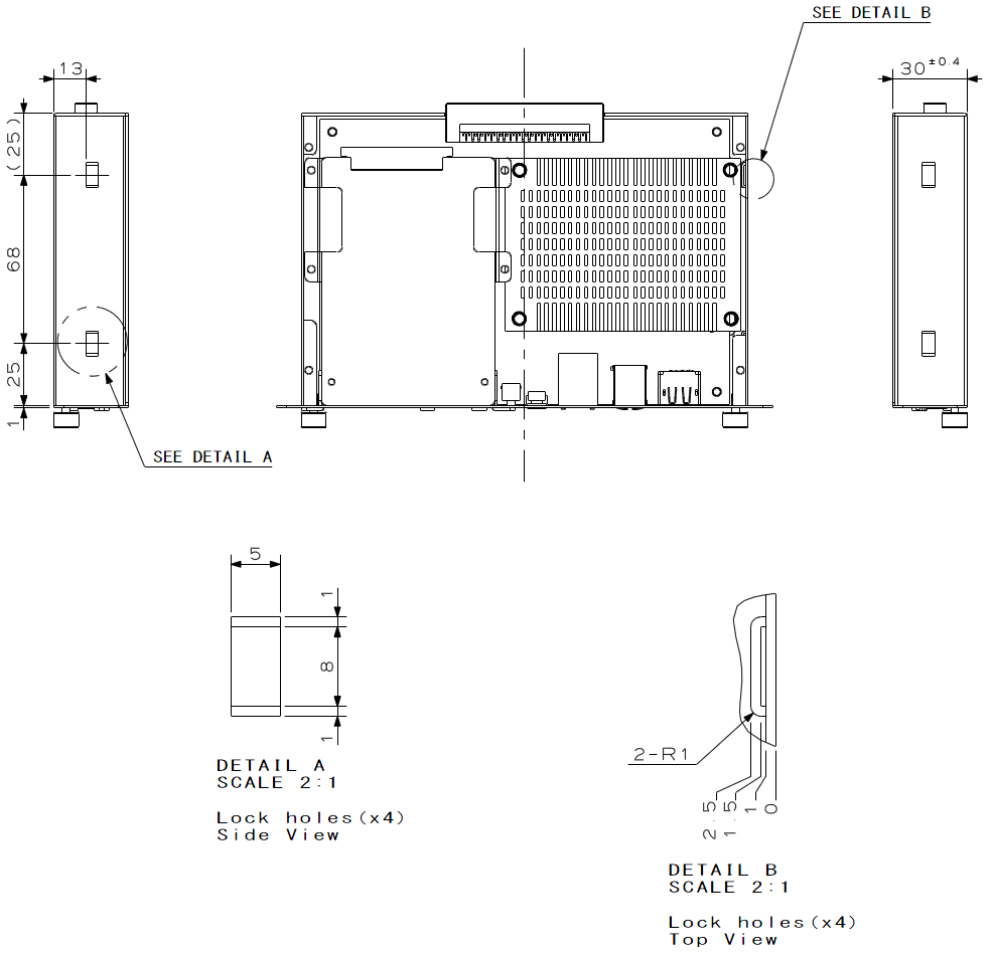


➢ The Guide Rail Mechanism for the OPS870 series Module

You can use the rails alongside of OPS870 series Module to dock and undock the plug connector at the back of the module to connect with docking board. There are two lock pins on each side of the rail which serve as the locking mechanism to attach the lock holes on the series module.

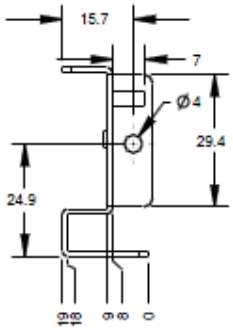


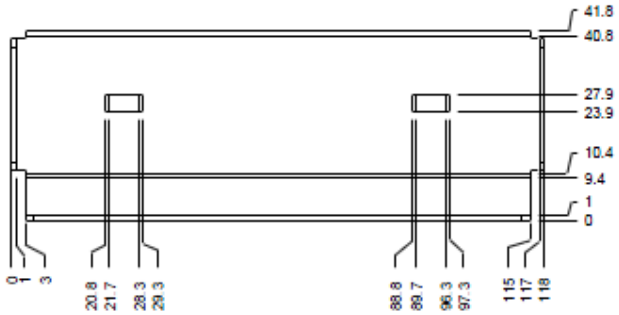
➢ Location of Lock Hole on the Pluggable Module

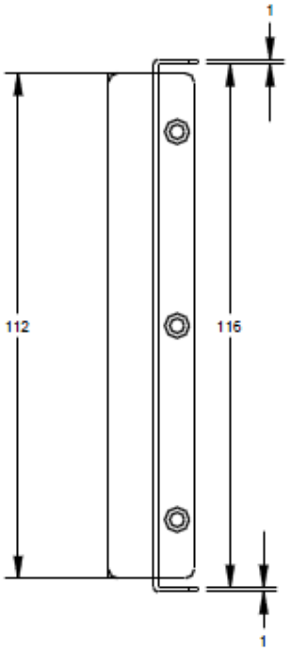


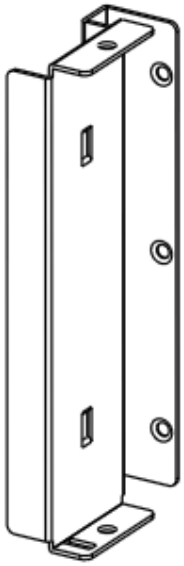
*The drawing is base on Intel Open Pluggable Specification

- Dimensions of the Guide Rail



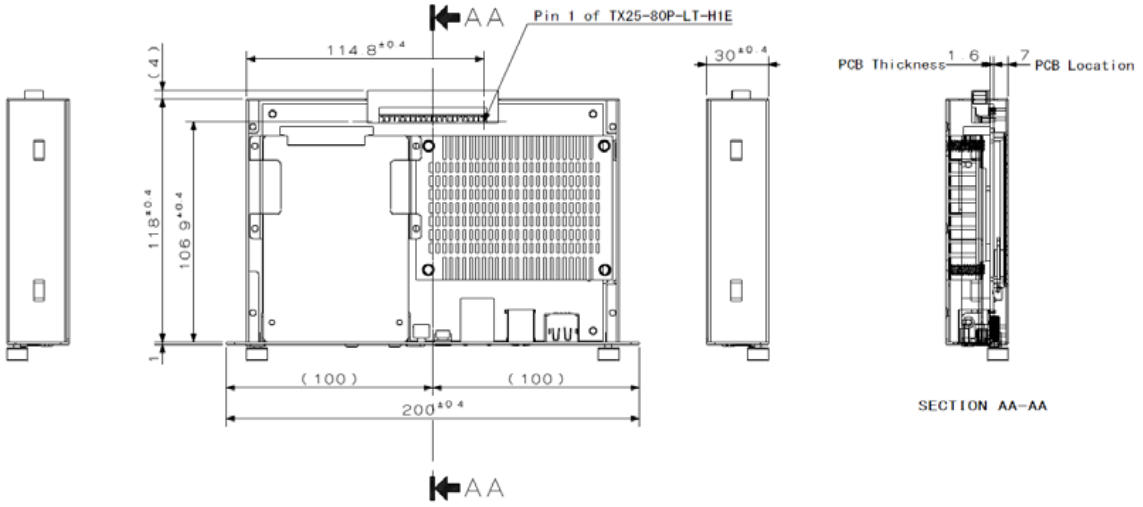






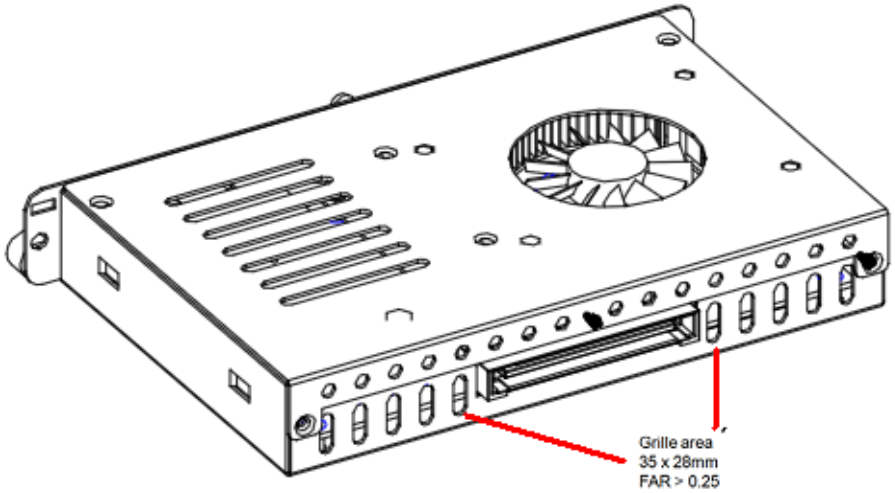
- Location of JAE TX25 Plug Connector

  Please refer to the following drawing for location of the JAE TX25 plug connector. Pin 1 of the connector is located at 114.8 mm from the edge of the module, and 106.9 mm from the inner side of the front panel. For mating tolerance of TX25 plug connector and TX24 receptacle connector, please refer to the JAE specification



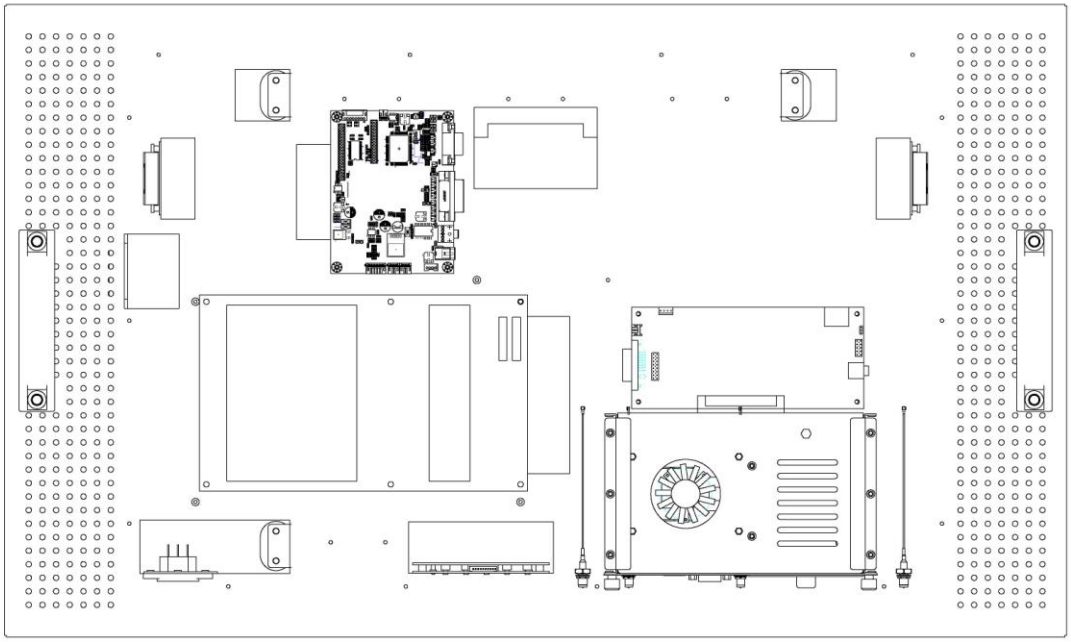
- Vent Holes at the Pluggable Module Back Panel

  On the OPS870 series module, it is recommended by Intel that some vent holes be opened at the back so that hot air can escape more easily from the module that the FAR in on both sides of the module back panel should be greater than 0.25.



1.3.4 Reference Design

Display Panel Rear View – Internal



The digital signage OPS870 series prototype is based on a 32" display panel with the functional blocks illustrated in Figure 18. It is mainly a 3-board partitioning design consisting of the pluggable module, docking board and the panel control board.

1.4 Package List

When you receive the OPS870 series, the bundled package should contain the following items:

- OPS870 device x 1
- CD x 1
- HDD Mylar x 1
- THERMAL GREASE(Syringe 1G)
- M3 x 4 screw x 2
- M4 x 6 screw x 2

If you cannot find the package or any items are missing, please contact Axiomtek distributors immediately.

CHAPTER 2
HARDWARE INSTALLATION

The OPS870 series is convenient for your various hardware configurations, such as HDD (Hard Disk Drive), Memory Module.

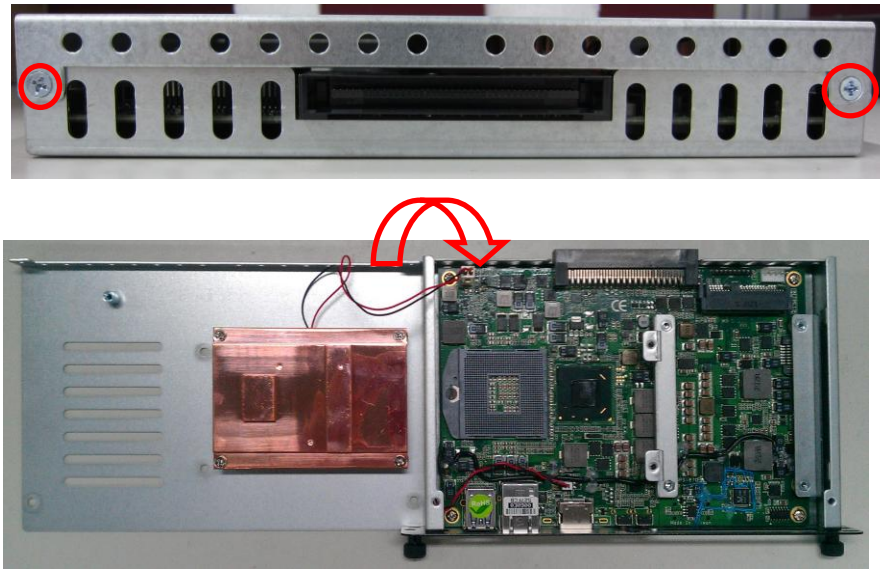
The chapter 2 will show you how to install the hardware. It includes:

- CPU, Hard disk Drive and DRAM Installation
- Pluggable Module Method

2.1 CPU,HDD,DRAM,Wireless Installation

The OPS870 series model offers a convenient drive bay module for users to install DRAM, CPU and HDD. Please follow the steps:

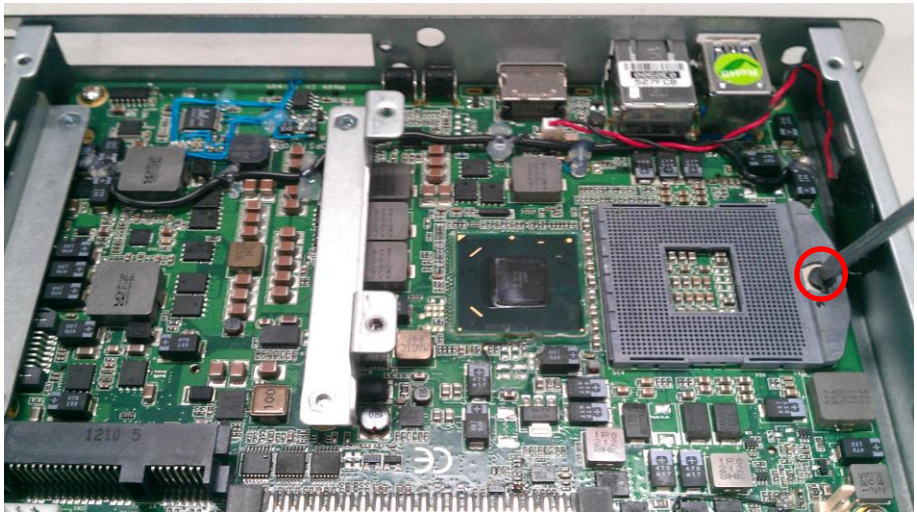
Step 1 Turn off the system, Loosen the screws as illustrated.



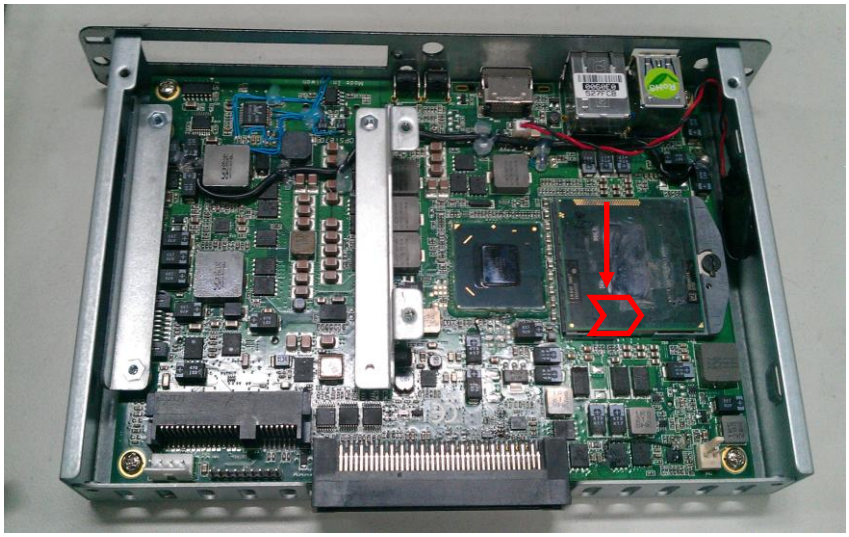
NOTE ***Please pull out power cable of system fan while installation***

Step 2 Install CPU

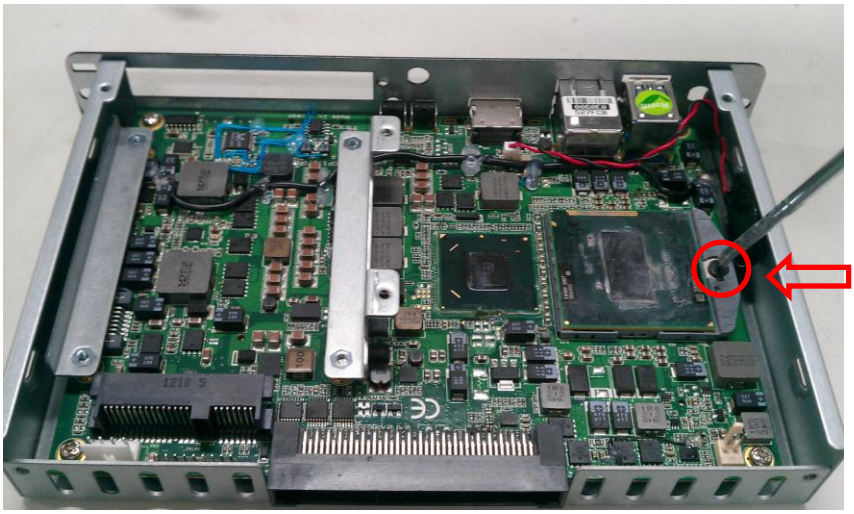
Step 2.1 Loosen the screws of CPU socket



Step 2.2 Insert the CPU in to the slot. Please follow the indication on CPU as mark and slot to ensure the proper insertion of the CPU

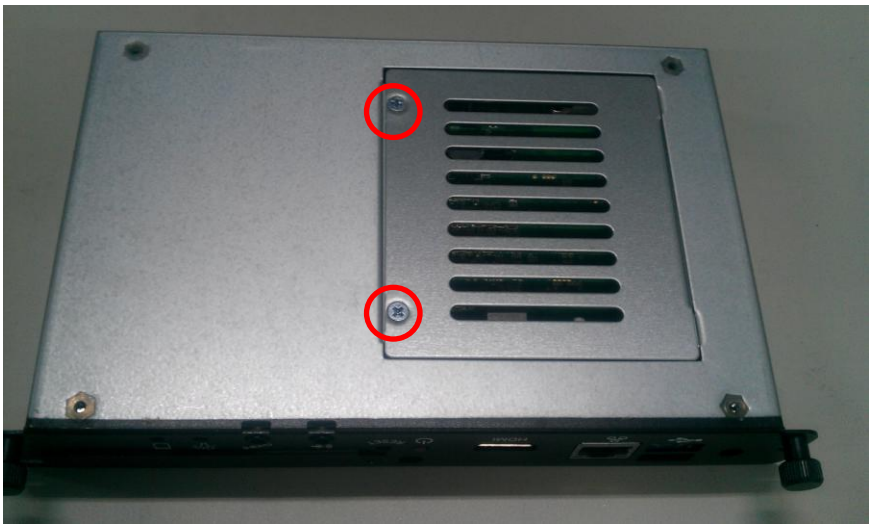


Step 2.3 CPU is inserted into the socket and the latch is closed.



Step 3 Install DRAM

Step 3.1 Loosen the screws on the real of chassis as illustrated.



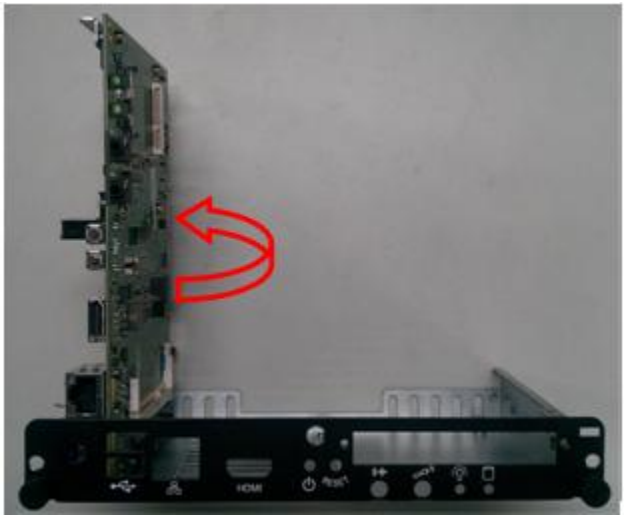
Step 3.2 After losing the screws, extract the real of chassis out of the module.

Step 3.3 **I**nstall DRAM module.

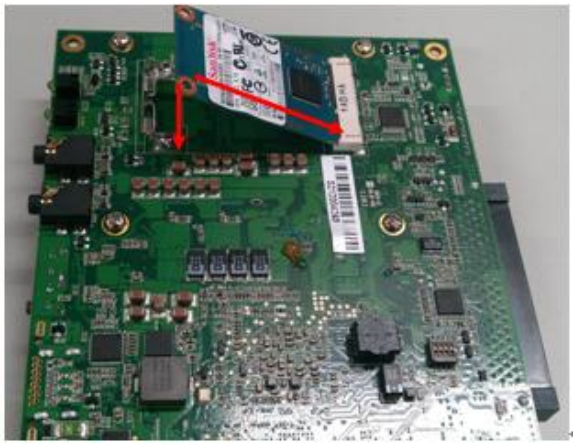
Put DRAM. Place the memory module into the socket and press it firmly. The socket latches are levered upwards and clipped on to the edges of the DIMM.

Step 4 Install mSATA

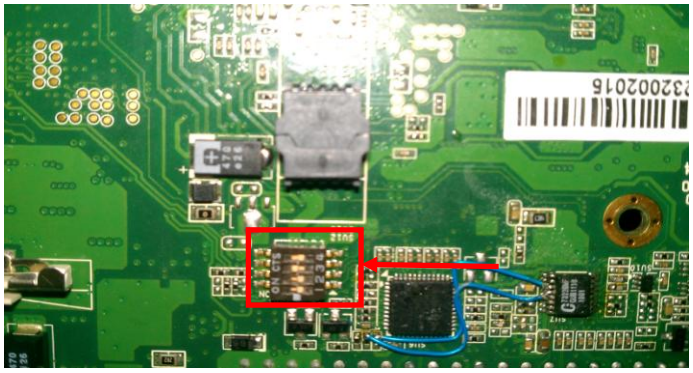
Step 4.1 Please refer to Step 1 to loosen the screws of the chassis and PCB board. Turn over the PCB board

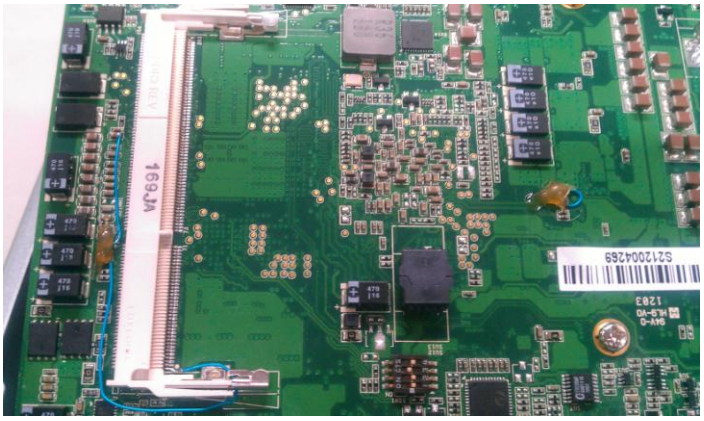


Step 4.2 Install mSATA module. Place the mSATA module into the socket and press it firmly down until it is fully located.



Step 4.3 Check from right to left on item 3 of SW1 per image illustrated to switch mSATA/mini card function.

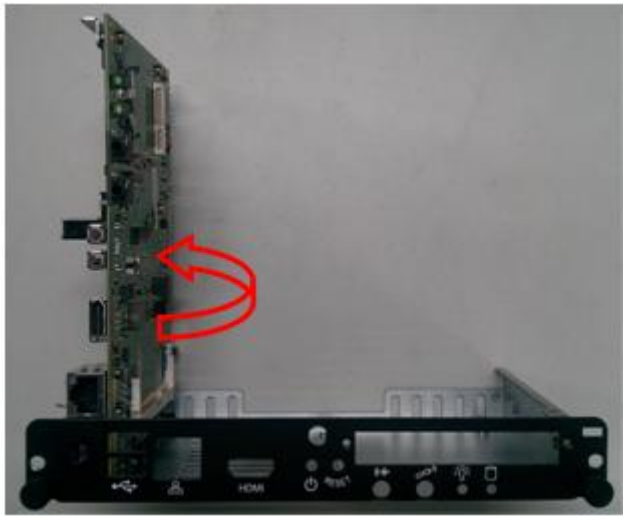




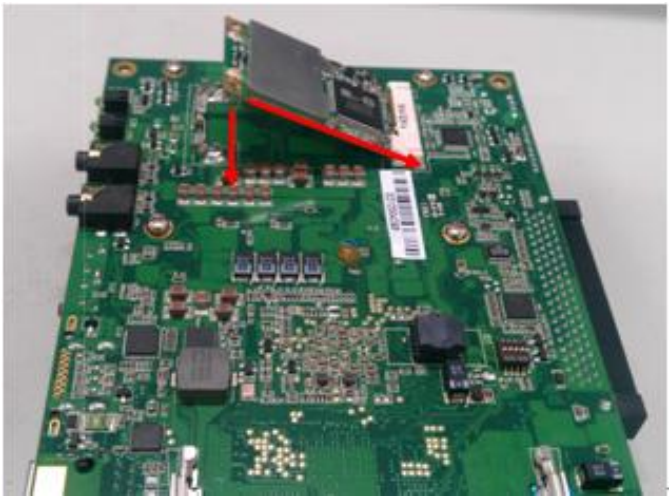
Step 5 Install Wireless Modules

The OPS870 series provides one Mini card slot for user to install one wireless LAN card. When installing the wireless LAN card, refer to the following instructions and illustration

Step 5.1 Please refer to Step 1 to loosen the screws of the chassis and PCB board. Turn over the PCB board



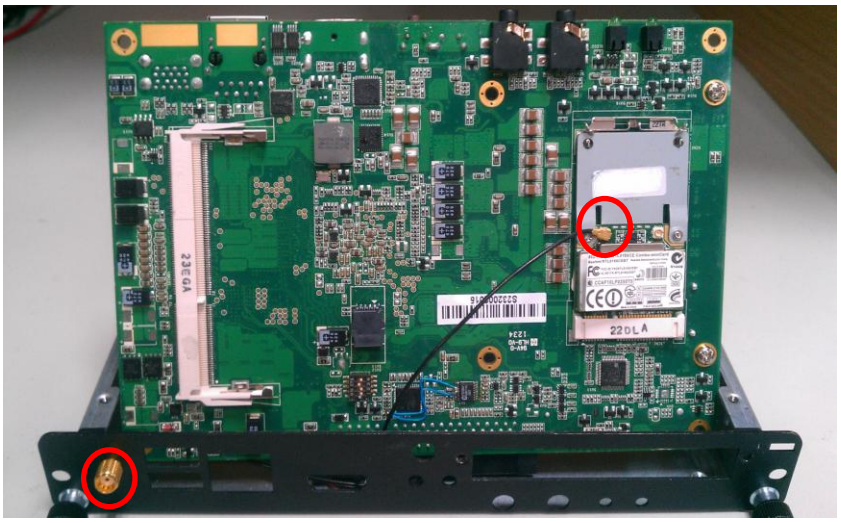
Step 5.2 Install Wi-Fi module. Place the Wi-Fi module into the socket and press it firmly down until it is fully located.



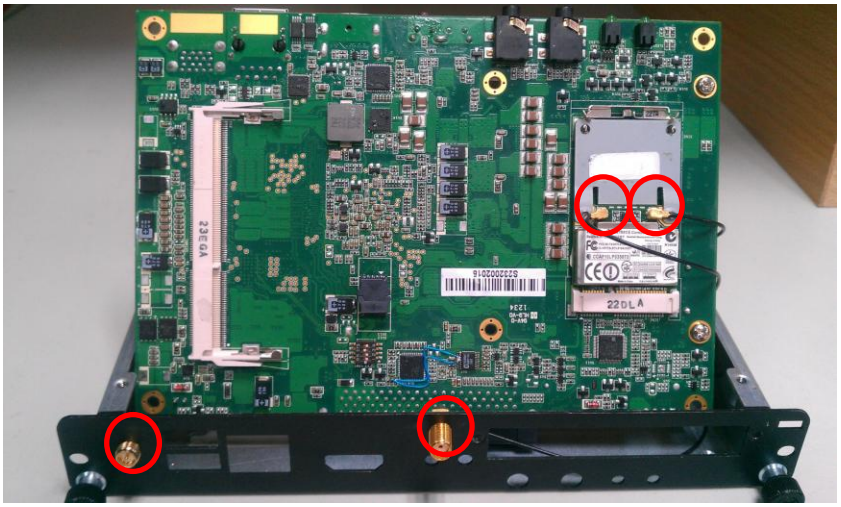
Step 5.3 Find the Antenna cable and connect it wireless LAN card.

Screw the antenna connector at expansion I/O side and Install the antenna on the wireless LAN card

- The wireless Module with one antenna application:



- The wireless Module with two antennas application:

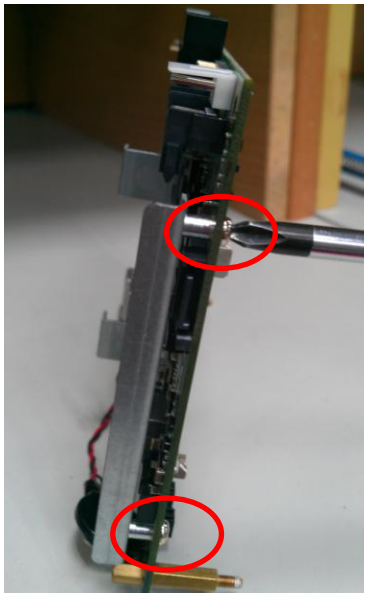


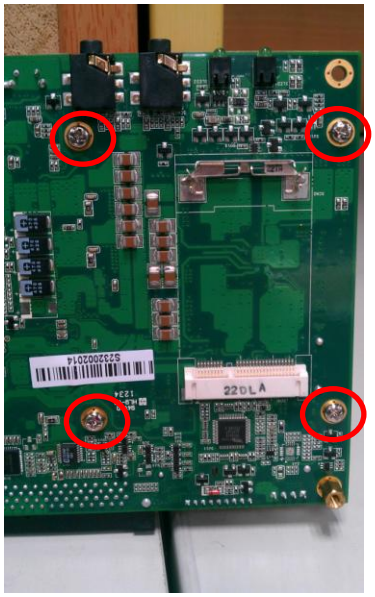
Step 6 Install HDD drive

To enable future remove of HDD drive, please affix the HDD Mylar sheet to the HDD drive so that it extends past the length of the HDD at the opposite end of the HDD to the Connector

Step 6.1 Loosen the screw of HDD driver cover

Step 6.2 Affix the HDD bracket to the M/B firmly





Step 6.3 Affix the HDD Mylar sheet to the HDD drive

Step 6.4 Plug HDD drive in to HDD connector

Step 6.5 Pull the HDD Mylar to slot-out the HDD drive

2.2 Pluggble Module Method

NOTE ***Please contact Axiomtek for the available option display***

Step 1 Pluggable the box into display

Step 2 Fasten the screws as illustrated

CHAPTER 3
CONNECTORS

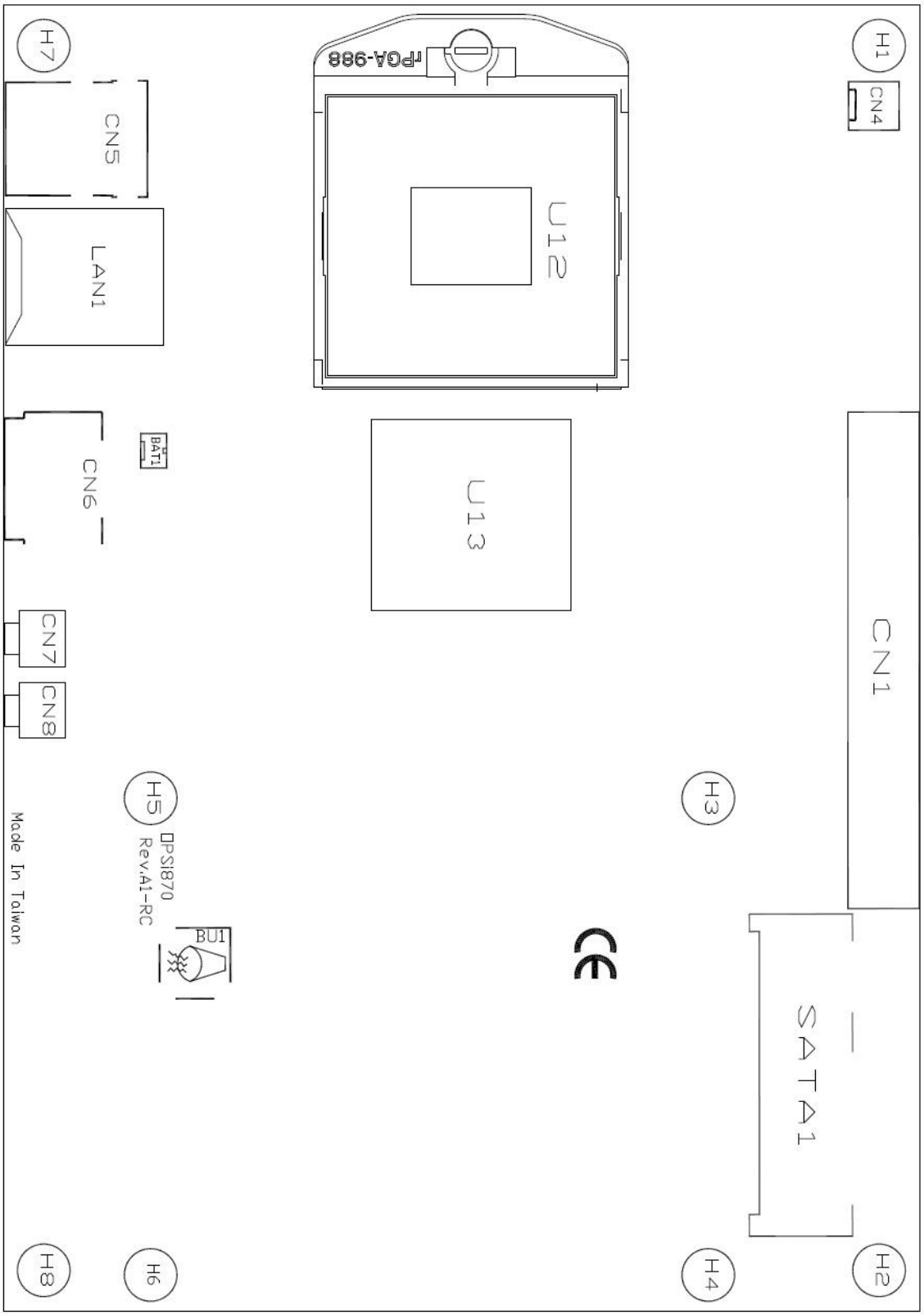
This chapter provides users with detailed description how to set up basic system configuration through the AMIBIOS8 BIOS setup utility.

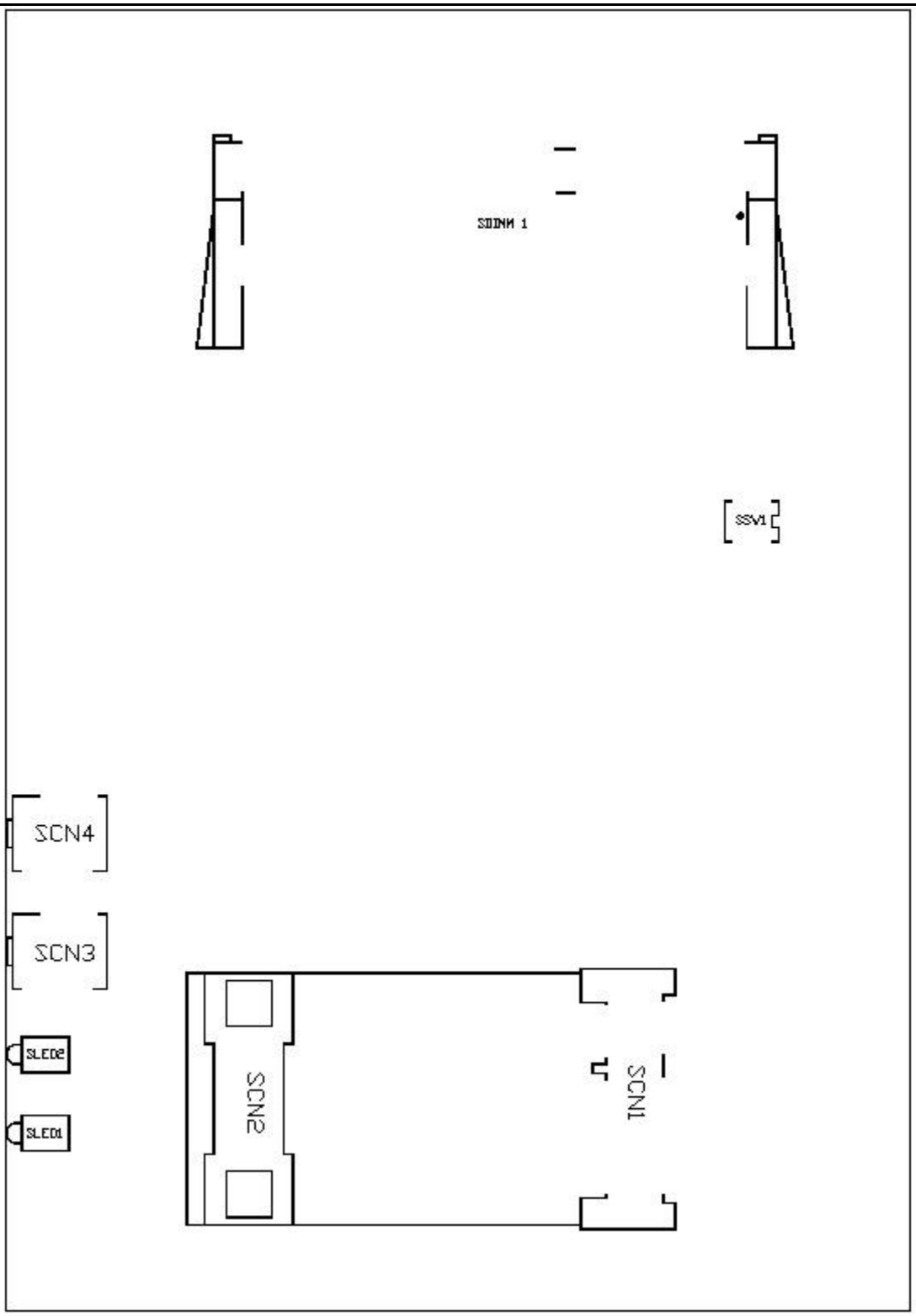
3.1 Connectors

Connectors connect this board with other parts of the system. Loose or improper connection might cause problems. Make sure all connectors are properly and firmly connected.

Here is a summary table shows you all connectors on the board.

Connector	Label
JAE TX25 Connector	CN1
CPU FAN	CN4
USB Port 0/1	CN5
HDMI	CN6
POWER BUTTON	CN7
RESET BUTTON	CN8
Mini Card Slot	SCN1
Audio MIC-IN Connector	SCN3
Audio LINE-OUT Connector	SCN4
Battery 2 PIN	BAT1
ATX Auto Power On (SSW1 1&8)	SSW1
Clear CMOS (SSW1 2&7)	
Mini PCIE / m-SATA (SSW1 3&6)	
SATA 12V Power ON/OFF For Optional(SSW1 4&5)	
SATA 0 & SATA 0 Power Connector	SATA1
RJ45 (WG82579LM)	LAN1
HDD LED	SLED1
Power LED	SLED2


H7
CN5
LAN1
CN6
BAT1
CN7
CN8
H5
PSI870
Rev.A1-RC
BU1
Made In Taiwan
H8
H6
PGA-988
U12
U13
H1
CN4
CN1
H3
SATA1
H4
H2


SCN4
SCN3
SLED2
SLED1
SCN2
SCN1
SSV1

3.1.1 JAE TX25 Connector (CN1)

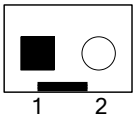
Connector JAE TX25 CN1 is for JAE interface support.

Pin	Signal	Pin	Signal	Pin	Signal
1	DDP_3N	2	DDP_3P	3	GND
4	DDP_2N	5	DDP_2P	6	GND
7	DDP_1N	8	DDP_1P	9	GND
10	DDP_0N	11	DDP_0P	12	GND
13	DDP_AUXN	14	DDP_AUXP	15	DDP_HPD
16	GND	17	TMDS_CLK-	18	TMDS_CLK+
19	GND	20	TMDS0-	21	TMDS0+
22	GND	23	TMDS1-	24	TMDS1+
25	GND	26	TMDS2-	27	TMDS2+
28	GND	29	DVI_DDC_DATA	30	DVI_DDC_CLK
31	DVI_HPD	32	GND	33	+12V~+19V
34	+12V~+19V	35	+12V~+19V	36	+12V~+19V
37	+12V~+19V	38	+12V~+19V	39	+12V~+19V
40	+12V~+19V	41	RSVD(Optional For PCIE_CN)	42	RSVD(Optional For PCIE_CP)
43	RSVD(Optional For PCIE_TP)	44	RSVD(Optional For PCIE_RP)	45	RSVD(Optional For PCIE_TN)
46	RSVD(Optional For PCIE_RN)	47	RSVD(Optional For DP CTRL CLK)	48	RSVD(Optional For DP CTRL DATA)
49	SLP S3 (Optional for PCIE RST)	50	SYS_FAN	51	UART_RXD
52	UART_TXD	53	GND	54	StdA_SSRX+
55	StdA_SSRX+	56	GND	57	StdA _ SSTX-
58	StdA_SSTX+	59	GND	60	USB_PN2
61	USB_PP2	62	GND	63	USB_PN1
64	USB_PP1	65	GND	66	USB_PN0
67	USB_PP0	68	GND	69	AZ_LINEOUT_L

Pin	Signal	Pin	Signal	Pin	Signal
70	AZ_LINEOUT_R	71	NC(Optional For CEC)	72	PB_DET
73	PS_ON#	74	PWR_STATUS	75	GND
76	GND	77	GND	78	GND
79	GND	80	GND		

3.1.2 CPU FAN (CN4)

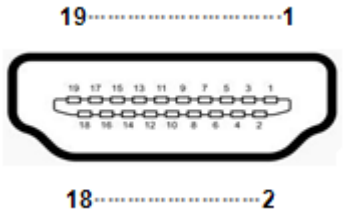
Pin	Description
1	GND
2	+5V



3.1.3 HDMI Connector (CN6)

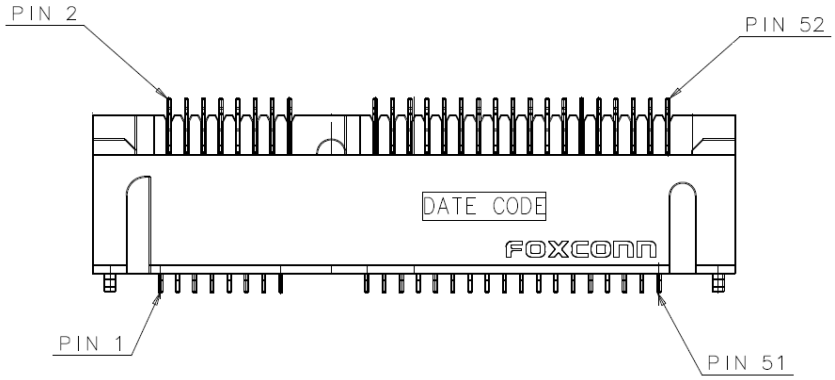
The HDMI (High-Definition Multimedia Interface) is a compact digital interface which is capable of transmitting high-definition video and high-resolution audio over a single cable. Its interface is available through connector CN6

Pin	Signal	Pin	Signal
1	HDMI OUT_DATA2+	2	GND
3	HDMI OUT_DATA2-	4	HDMI OUT_DATA1+
5	GND	6	HDMI OUT_DATA1-
7	HDMI OUT_DATA0+	8	GND
9	HDMI OUT_DATA0-	10	HDMI OUT Clock+
11	GND	12	HDMI OUT Clock-
13	N.C.	14	N.C.
15	HDMI OUT_SCL	16	HDMI OUT_SDA
17	GND	18	+5V
19	HDMI_HTPLG		



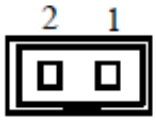
3.1.4 Min Card Slot (SCN1)

Pin	Signal	Pin	Signal	Pin	Signal
1	WAKE#	2	+3.3VAUX	3	RVD1
4	GND	5	RVD2	6	+1.5V
7	CLKREQ#	8	RVD19	9	GND
10	RVD18	11	REFCLK-	12	RVD16
13	REFCLK+	14	RVD15	15	GND
16	RVD14	17	RVD3	18	GND
19	RVD4	20	+3.3VAUX	21	GND
22	PERST#	23	PERN0	24	+3.3VAUX
25	PERP0	26	GND	27	GND
28	+1.5V	29	GND	30	SMB_CLK
31	PETN0	32	SMB_DATA	33	PETP0
34	GND	35	GND	36	USB_D-
37	RVD5	38	USB_D+	39	+3.3VAUX
40	GND	41	+3.3VAUX	42	LED_WWAN#
43	RVD8	44	LED_WLAN#	45	RVD9
46	LED_WPAN#	47	RVD10	48	+1.5V
49	RVD11	50	GND	51	RVD12
52	+3.3VAUX				



3.1.5 Battery 2 PIN (BAT1)

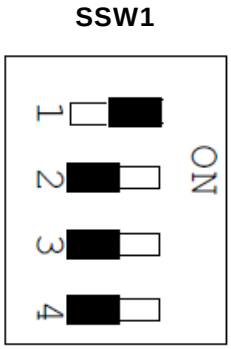
Pin	Description
1	+VBAT
2	GND



3.1.6 ATX Auto Power ON/ Clear CMOS (SSW1-Pin1~8)

AT or ATX Select (SSW1- Pin1 & Pin8)

Description	Settings
ATX	OFF (Default)
AT	ON



3.1.7 Clear CMOS (SSW1-Pin2~7)

Clear CMOS (SSW1- Pin2 & Pin7)

Description	Settings
Clear CMOS	OFF (Default)
Clear CMOS	ON

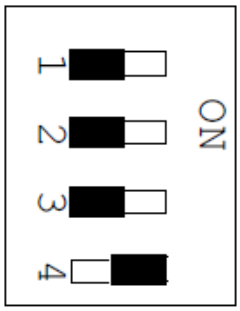
3.1.8 Mini PCIE / m-SATA Switch (SSW1-Pin3~6)

Mini PCI-E or m-SATA Select (SSW1- Pin3 & Pin6)

Description	Settings	SSW1
Mini PCI-E	OFF (Default)	
m-SATA	ON	

3.1.9 SATA 12V Power Enable (SSW1-Pin4~5) (Optional) :

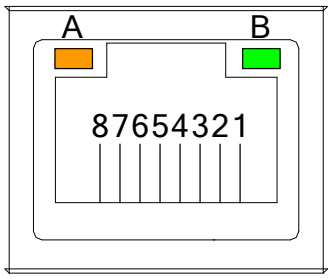
SATA 12V Power Enable (SSW1- Pin4 & Pin5)

Description	Settings	SSW1
12V Power Enable	OFF (Default)	
12V Power Disable	ON	

3.1.10 RJ45 (WG82579LM) (LAN1)

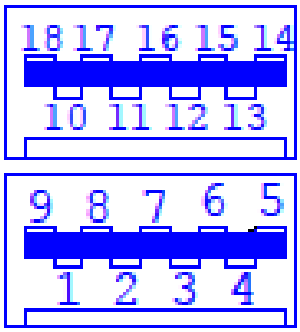
The RJ-45 connector LAN1 is for Ethernet. To connect the board to 100-Base-T or 1000-Base-T hub, just plug one end of the cable into LAN1 and connect the other end (phone jack) to a 100-Base-T hub or 1000-Base-T hub.

Pin	Signal
1	Tx+ (Data transmission positive)
2	Tx- (Data transmission negative)
3	Rx+(Data reception positive)
4	RJ-1(For 1000 base T-Only)
5	RJ-1(For 1000 base T-Only)
6	Rx- (Data reception negative)
7	RJ-1(For 1000 base T-Only)
8	RJ-1(For 1000 base T-Only)
A	Active LED
B	Speed LED



3.1.11 USB Port 0/1 (CN5)

Pin	Signal
1	USB3_POWER
2	USB D0-
3	USB D0+
4	GND
5	USB3_SSRX0-
6	USB3_SSRX0+
7	GND
8	USB3_ SSTX0-
9	USB3_ SSTX0+
10	USB3_POWER
11	USB D1-
12	USB D1+
13	GND
14	USB3_SSRX1-
15	USB3_SSRX1+
16	GND



3.1.12 Power LED

The Power LED lights up when the system is powered ON.

3.1.13 HDD Activity LED

This connection is linked to hard drive activity LED on the control panel. LED flashes when HDD is being accessed

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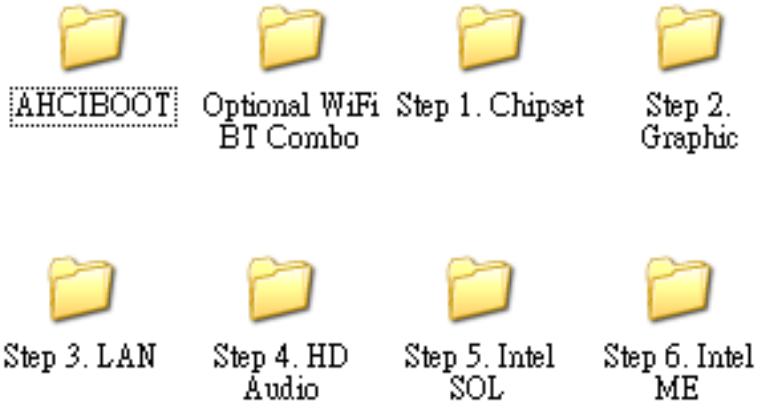
CHAPTER 4
DRIVERS INSTALLATION

4.1 System

OPS870 series supports Windows XP, Win Vista and Window 7. To facilitate the installation of system driver, please carefully read the instructions in this chapter before start installing.

- Insert Intel Express Installer Driver CD and select the "\Driver\".
- Select your operating system driver to install.



- Select all files and follow the installing procedure.

Note: For latest system driver for installation, you may visit Axiomtek website at www.axiomtek.com

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CHAPTER 5
AMI BIOS SETUP UTILITY

This chapter provides users with detailed description how to set up basic system configuration through the AMIBIOS8 BIOS setup utility.

5.1 Starting

To enter the setup screens, follow the steps below:

- Turn on the computer and press the <F2> key immediately.
- After you press the <F2> key, the main BIOS setup menu displays. You can access the other setup screens from the main BIOS setup menu, such as the Chipset and Power menus.

5.2 Navigation Keys

The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process.

These keys include <F1>, <F2>, <Enter>, <ESC>, <Arrow> keys, and so on.

NOTE: Some of navigation keys differ from one screen to another.

← **Left/Right**	The Left <Arrow> keys allow you to select a setup screen.
↑↓ **Up/Down**	The Up and Down <Arrow> keys allow you to select a setup screen or sub-screen.
+– Plus/Minus	The Plus and Minus <Arrow> keys allow you to change the field value of a particular setup item.
Tab	The <Tab> key allows you to select setup fields.
F1	The <F1> key allows you to display the General Help screen.
F2	The <F2> key allows you to Load Previous Values.
F3	The <F3> key allows you to Load Optimized Defaults.
F4	The <F4> key allows you to save any changes you have made and exit Setup. Press the <F4> key to save your changes.
Esc	The <Esc> key allows you to discard any changes you have made and exit the Setup. Press the <Esc> key to exit the setup without saving your changes.
Enter	The <Enter> key allows you to display or change the setup option listed for a particular setup item. The <Enter> key can also allow you to display the setup sub- screens.

5.3 Main Menu

When you first enter the Setup Utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab. There are two Main Setup options. They are described in this section. The Main BIOS Setup screen is shown below.

- **System Date/Time**

  Use this option to change the system date and time. Highlight System Date or System Time using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Enter> keys to move between fields. The date must be entered in MM/DD/YY format. The time is entered in HH:MM:SS format.

5.4 Advanced Menu

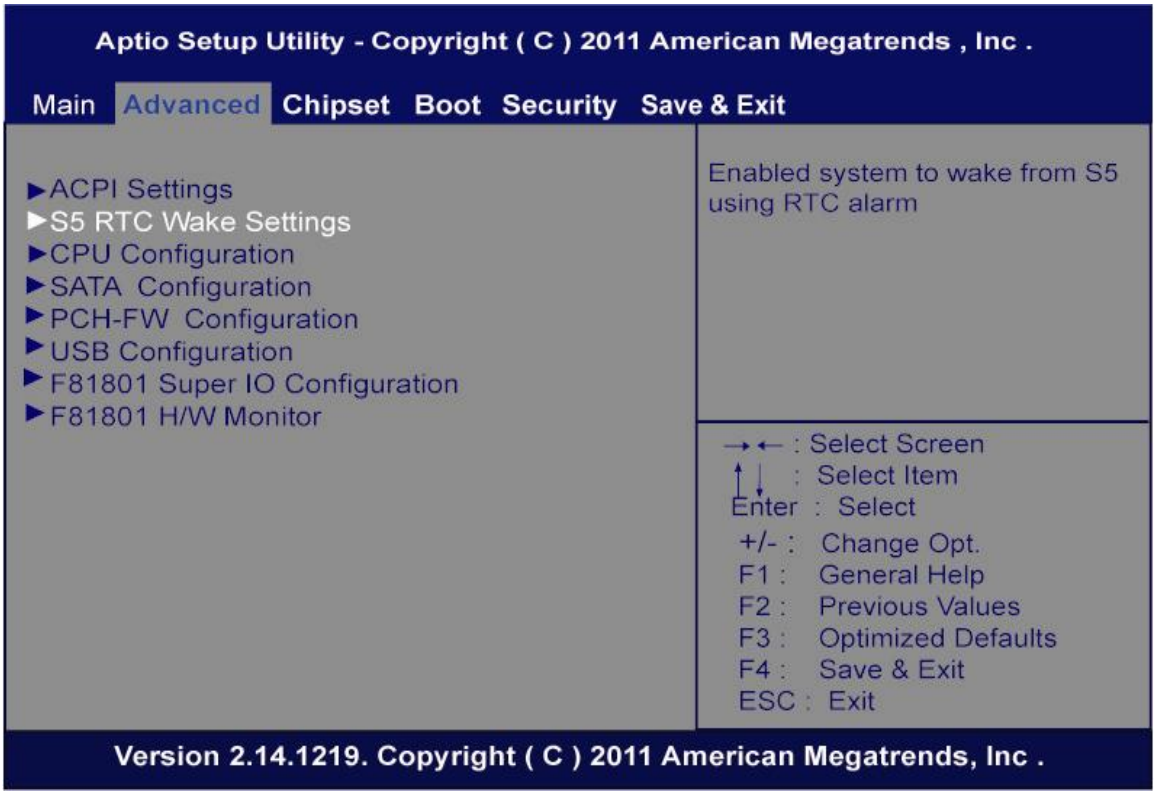
- **Launch PXE OpROM**

Use this item to enable or disable the Boot ROM function of the onboard LAN chip when the system boots up.

The Advanced menu also allows users to set configuration of the CPU and other system devices. You can select any of the items in the left frame of the screen to go to the sub menus:

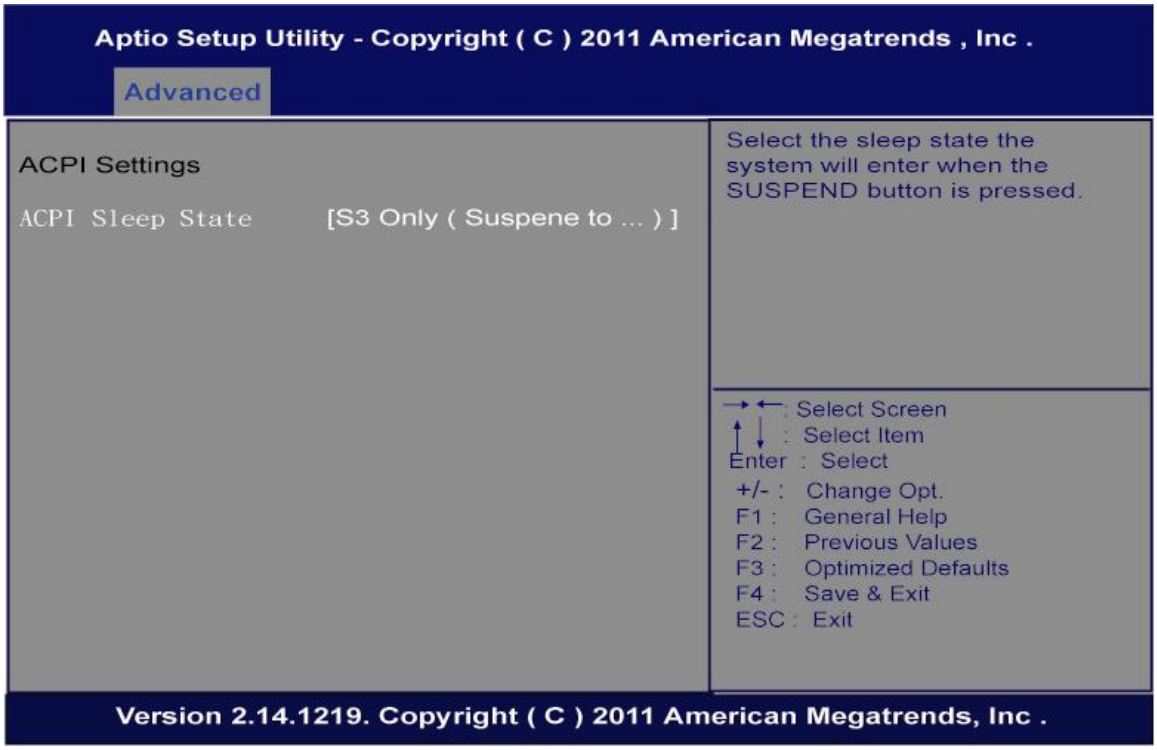
- **ACPI Settings**
- **S5 RTC Wake Settings**
- **CPU Configuration**
- **SATA Configuration**
- **PCH-FW Configuration**
- **USB Configuration**
- **F81801 Super IO Configuration**
- **F81801 H/W Monitor**

For items marked with "►", please press <Enter> for more options.



- **ACPI Settings**

You can use this screen to select options for the ACPI Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.

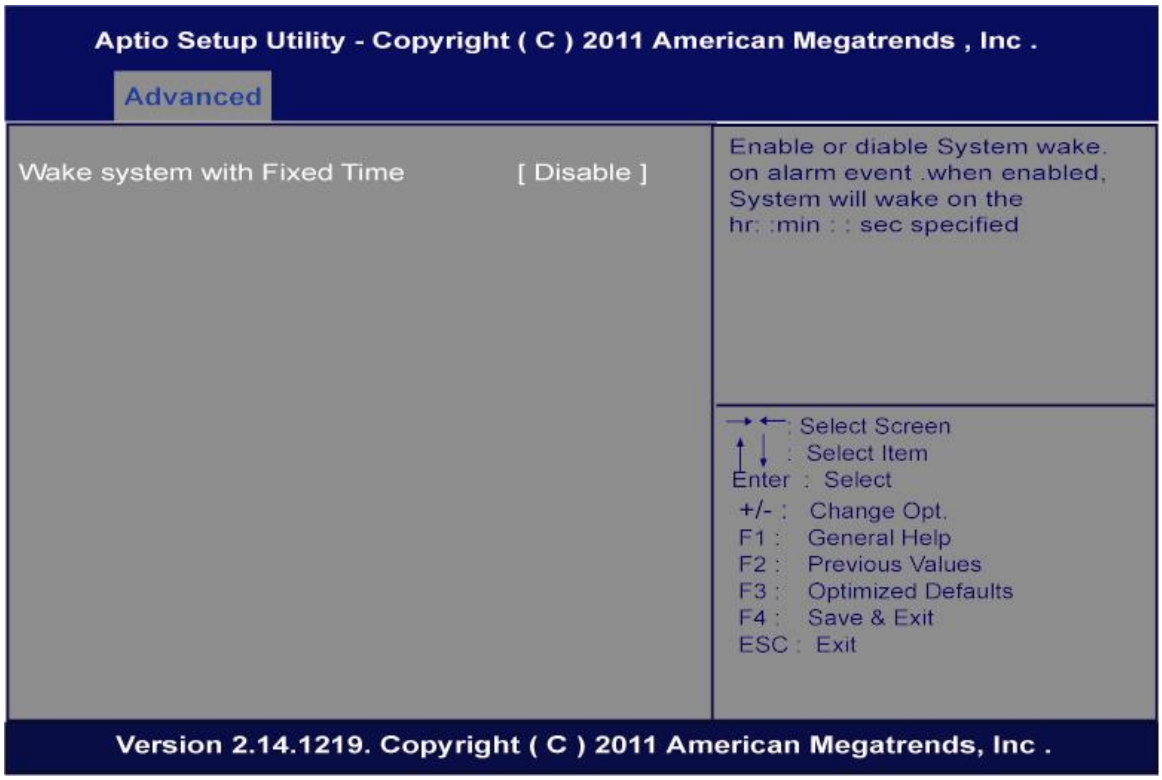

Aptio Setup Utility - Copyright (C) 2011 American Megatrends , Inc .
Advanced
ACPI Settings
ACPI Sleep State
[S3 Only (Suspene to ...)]
Select the sleep state the system will enter when the SUSPEND button is pressed.
: Select Screen
: Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc .

- **ACPI Sleep State**

  Allow you to select the Advanced Configuration and Power Interface (ACPI) state to be used for system suspend. Here are the options for your selection, S1 (CPU Stop Clock), S3 (Suspend to RAM) and Suspend Disable.

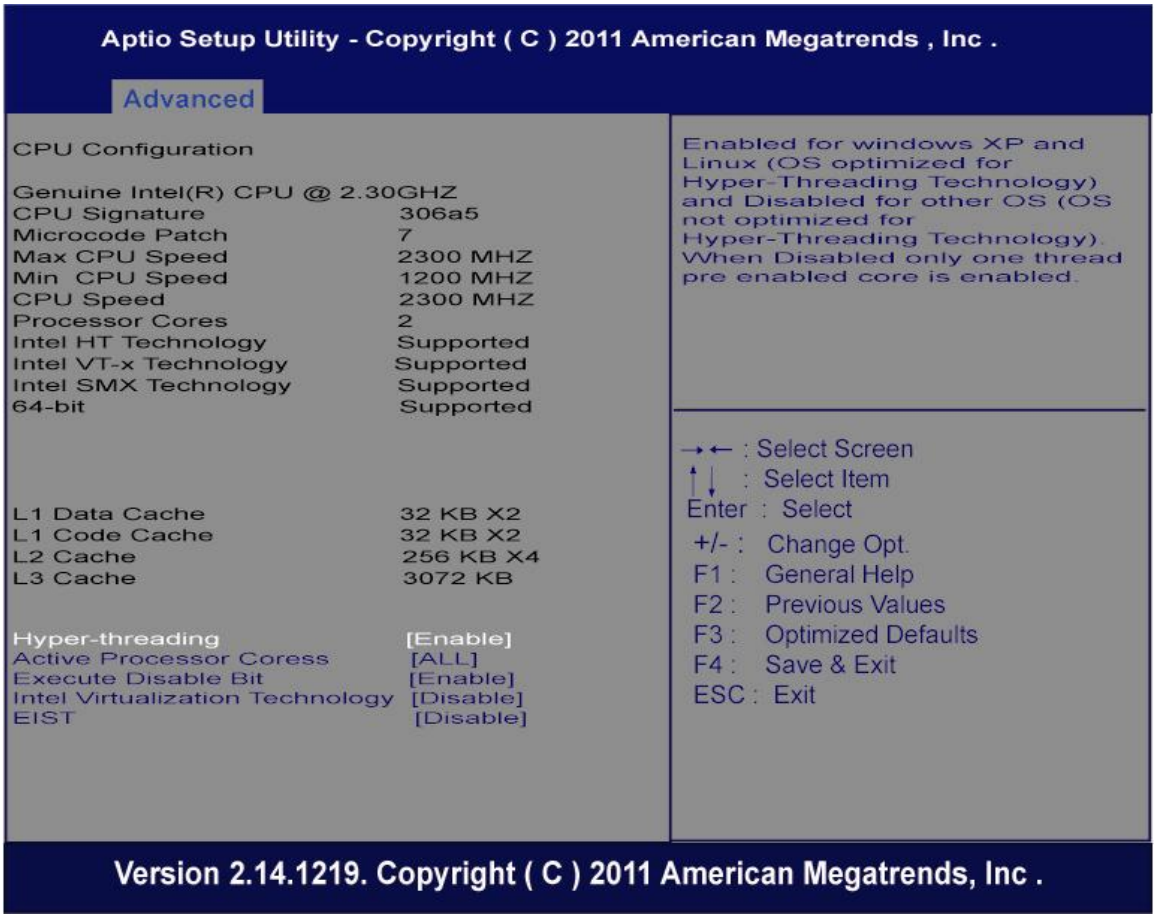
- **S5 RTC Wake Settings**

Enable or disable system wake on alarm event


Aptio Setup Utility - Copyright (C) 2011 American Megatrends , Inc .
Advanced
Wake system with Fixed Time [Disable]
Enable or diable System wake.
on alarm event .when enabled,
System will wake on the
hr: :min : : sec specified
: Select Screen
: Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc .

- **CPU Configuration**

This screen shows the CPU Configuration, and you can change the value of the selected option.


Aptio Setup Utility - Copyright (C) 2011 American Megatrends , Inc .
Advanced
CPU Configuration
Genuine Intel(R) CPU @ 2.30GHZ
CPU Signature 306a5
Microcode Patch 7
Max CPU Speed 2300 MHZ
Min CPU Speed 1200 MHZ
CPU Speed 2300 MHZ
Processor Cores 2
Intel HT Technology Supported
Intel VT-x Technology Supported
Intel SMX Technology Supported
64-bit Supported
L1 Data Cache 32 KB X2
L1 Code Cache 32 KB X2
L2 Cache 256 KB X4
L3 Cache 3072 KB
Hyper-threading [Enable]
Active Processor Coress [ALL]
Execute Disable Bit [Enable]
Intel Virtualization Technology [Disable]
EIST [Disable]
Enabled for windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology). When Disabled only one thread pre enabled core is enabled.
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc .

- **Hyper-threading**

  This feature can enable /disable Intel Hyper-Threading technology

- **Active Processor Cores**

  This feature controls the number of cores to enable in each processor package.

- **Execute Disable Bit**

  Execute Disable Bit is a hardware-based security feature that can reduce exposure to viruses and malicious-code attacks and prevent harmful software from executing and propagating on the server o network

- **Intel Virtualization Technology**

  Allows a hardware platform to run multiple operating systems separately and simultaneously, enabling one system to virtually function as several systems.

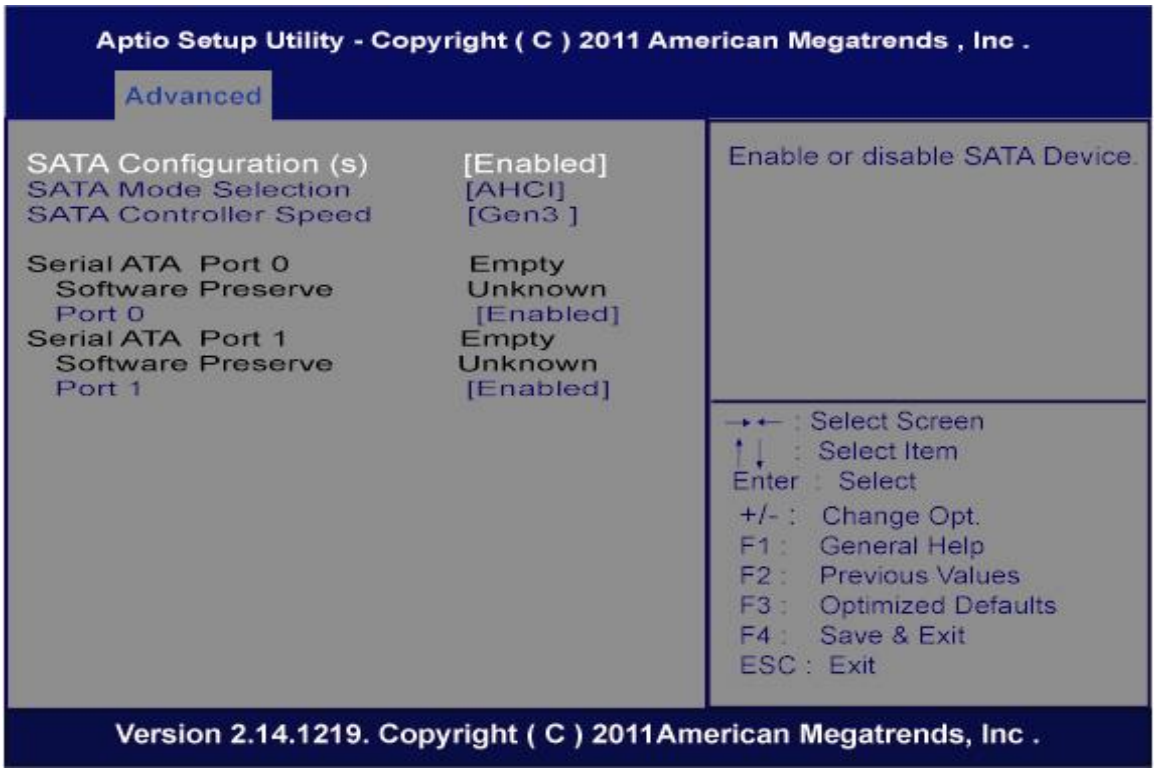
- **EIST**

  This feature can enable /disable Enhanced Intel speed Step Technology (EIST

  EIST (Enhanced Intel Speed Step Technology) allows the system to automatically adjust processor voltage and core frequency in an effort to reduce power consumption and heat dissipation

- **SATA Configuration**

You can use this screen to select options for the SATA Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.


Aptio Setup Utility - Copyright (C) 2011 American Megatrends , Inc .
Advanced
SATA Configuration (s) [Enabled]
SATA Mode Selection [AHCI]
SATA Controller Speed [Gen3]
Serial ATA Port 0 Empty
Software Preserve Unknown
Port 0 [Enabled]
Serial ATA Port 1 Empty
Software Preserve Unknown
Port 1 [Enabled]
Enable or disable SATA Device.
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.14.1219. Copyright (C) 2011American Megatrends, Inc .

- **Serial-ATA Controller(S)**

  Use this item to enable or disable the integrated SATA controllers. (Default: Enabled

- **SATA Mode Selection**

  Use this item to choose the SATA operation mode. Here are the options for your selection, IDE Mode, AHCI Mode.

- **SATA Controller Speed**

  Use this item to change the SATA transfer rate

- **Serial-ATA Controller 0**

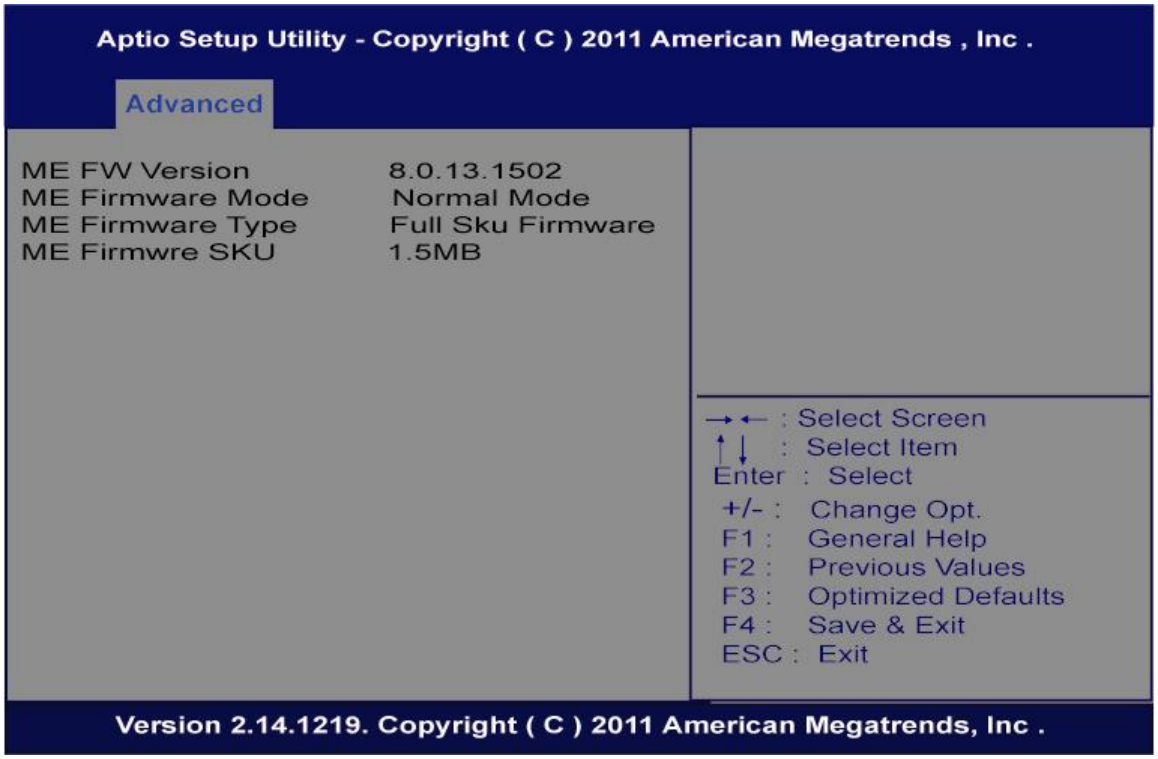
  Use this item to control the onboard SATA controller. Here are the options for your selection, Enhanced and Disabled.

- **Serial-ATA Controller 1**

  Use this item to control the onboard SATA controller. Here are the options for your selection, Enhanced and Disabled

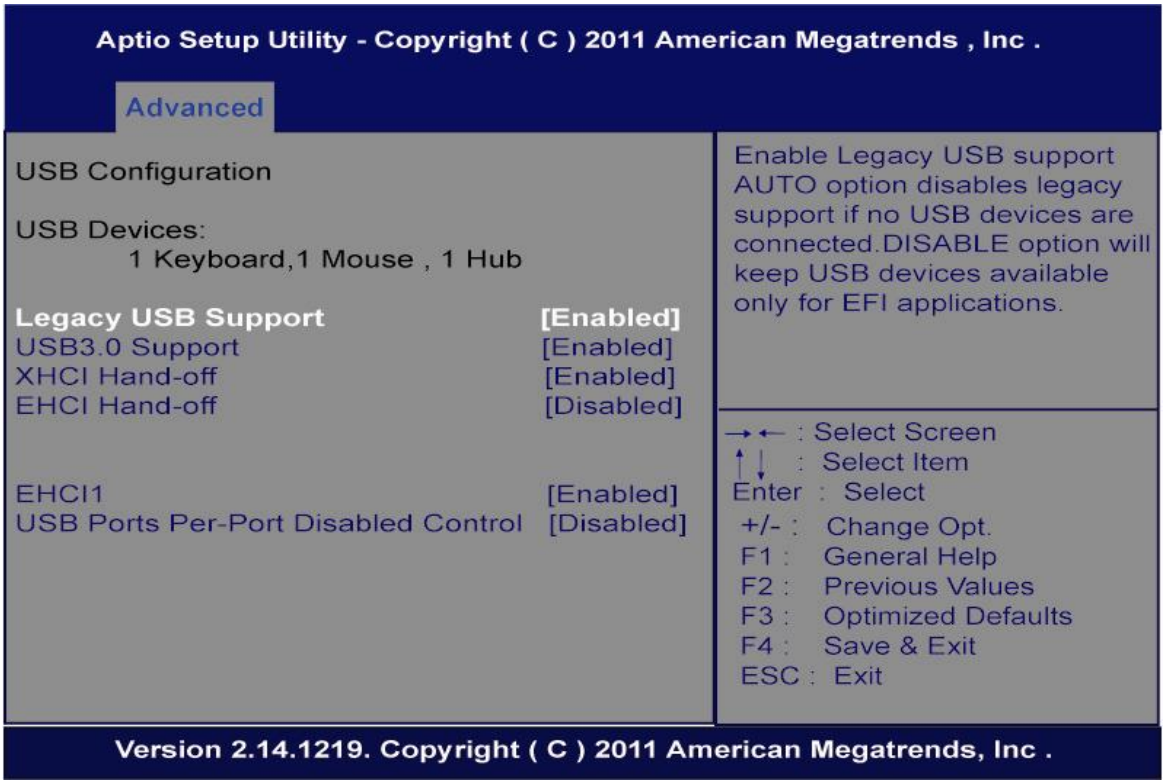
- **PCH-FW Configuration**

You can use this screen to confirm ME Firmware version.


Aptio Setup Utility - Copyright (C) 2011 American Megatrends , Inc .
Advanced
ME FW Version 8.0.13.1502
ME Firmware Mode Normal Mode
ME Firmware Type Full Sku Firmware
ME Firmwre SKU 1.5MB
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc .

- **USB Configuration**

You can use this screen to select options for the USB Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.


Aptio Setup Utility - Copyright (C) 2011 American Megatrends , Inc .
Advanced
USB Configuration
USB Devices:
1 Keyboard,1 Mouse , 1 Hub
Legacy USB Support [Enabled]
USB3.0 Support [Enabled]
XHCI Hand-off [Enabled]
EHCI Hand-off [Disabled]
EHCI1 [Enabled]
USB Ports Per-Port Disabled Control [Disabled]
Enable Legacy USB support AUTO option disables legacy support if no USB devices are connected.DISABLE option will keep USB devices available only for EFI applications.
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc .

- **Legacy USB Support**

  This is for supporting USB device under legacy OS such DOS, when choosing AUTO", the system will automatically detect any USB device is plugged into the computer and enable USB legacy mode when a USB device plugged and disable USB legacy mode when no USB device is plugged.

- **USB3.0 Support**

  Use this item to enable USB3.0 function.

- **XHCI Hand-off**

  Use this item to enable XHCI Hand-off feature for an operating system without XHCI Hand-off support

- **EHCI Hand-off**

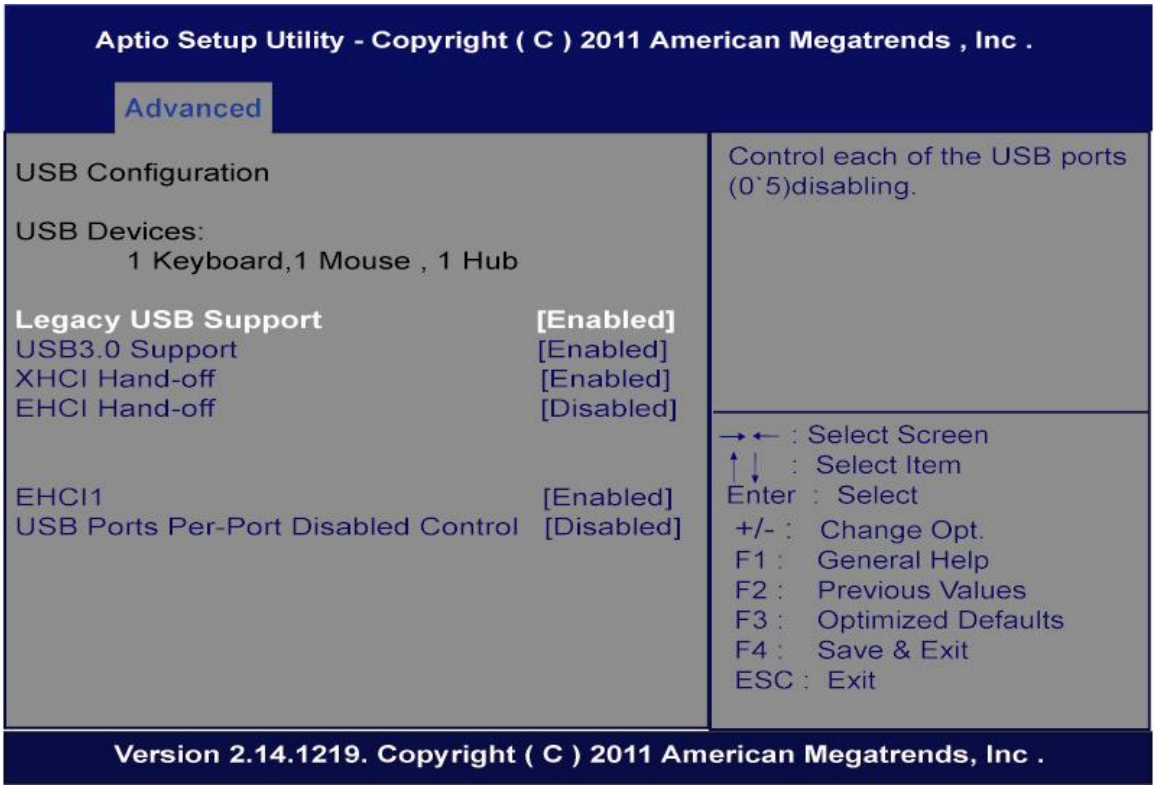
  Use this item to enable EHCI Hand-off feature for an operating system without EHCI Hand-off support.

- **EHCI 1**

Enable or Disable EHCI Controller

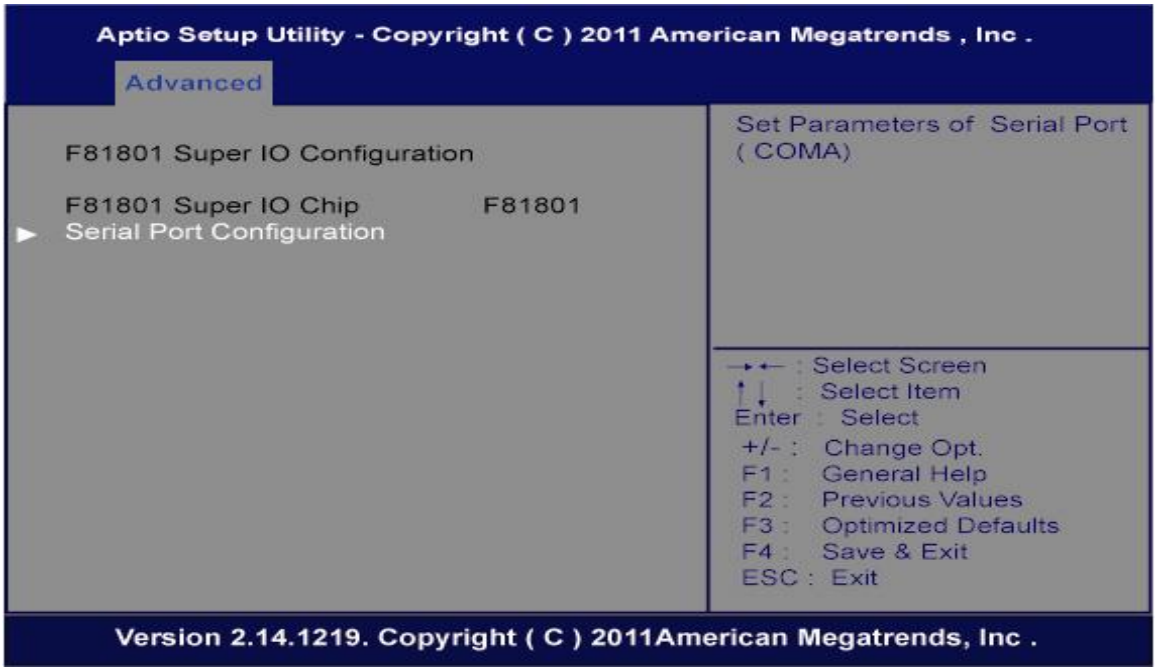
- **USB Ports Per-Port Disable**

Control each of the USB ports (0~5) ports


Aptio Setup Utility - Copyright (C) 2011 American Megatrends , Inc .
Advanced
USB Configuration
USB Devices:
1 Keyboard,1 Mouse , 1 Hub
Legacy USB Support [Enabled]
USB3.0 Support [Enabled]
XHCI Hand-off [Enabled]
EHCI Hand-off [Disabled]
EHCI1 [Enabled]
USB Ports Per-Port Disabled Control [Disabled]
Control each of the USB ports (0`5)disabling.
: Select Screen
: Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc .

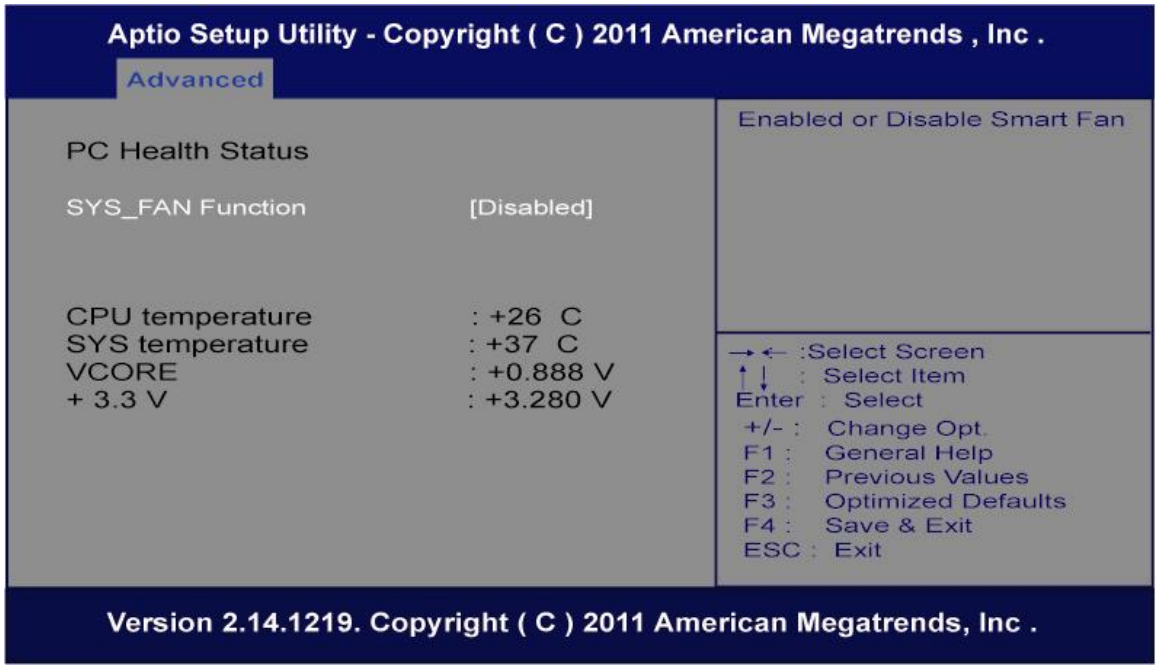
- **F81801 Super IO Configuration**

Set Parameters of Serial Port (COM 1 UART)


Aptio Setup Utility - Copyright (C) 2011 American Megatrends , Inc .
Advanced
F81801 Super IO Configuration
F81801 Super IO Chip F81801
Serial Port Configuration
Set Parameters of Serial Port (COMA)
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.14.1219. Copyright (C) 2011American Megatrends, Inc .

- **F81801 H/W Monitor**

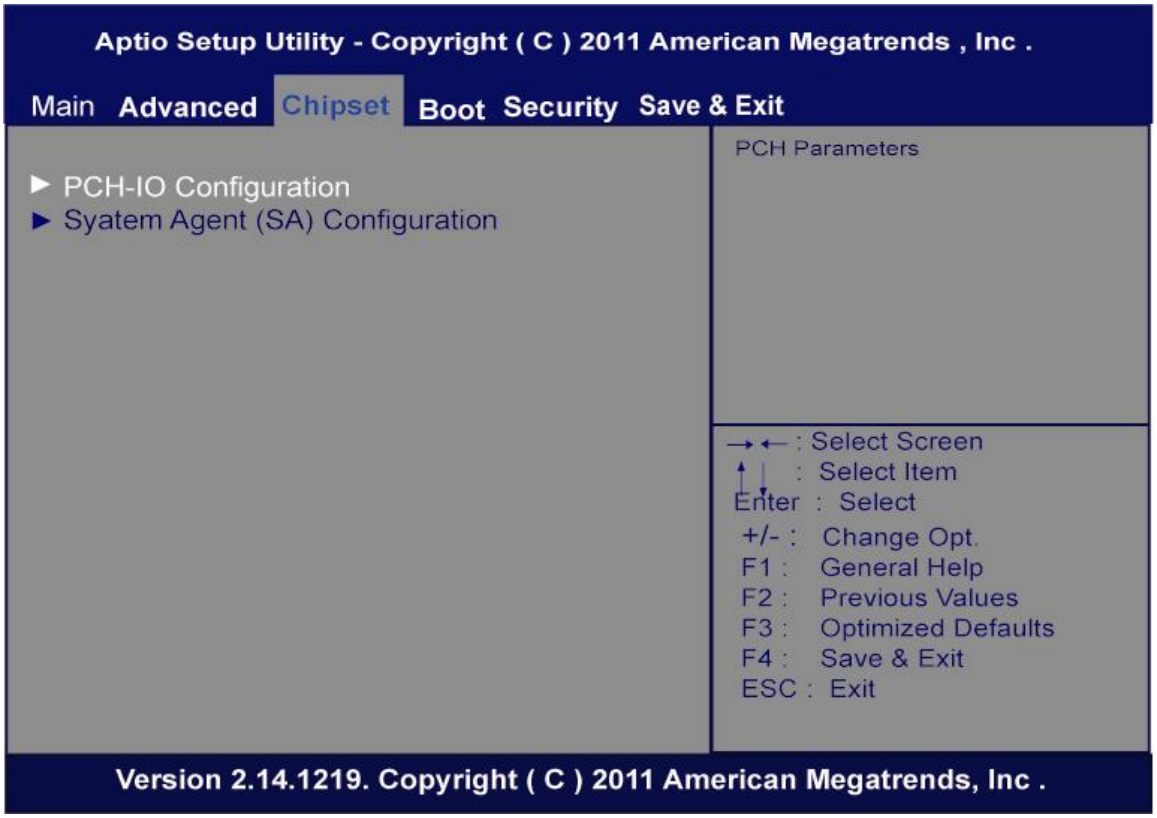
This screen shows the Hardware Health Configuration, And Enable or disables SYS FAN.


Aptio Setup Utility - Copyright (C) 2011 American Megatrends , Inc .
Advanced
PC Health Status
SYS_FAN Function [Disabled]
CPU temperature : +26 C
SYS temperature : +37 C
VCORE : +0.888 V
+ 3.3 V : +3.280 V
Enabled or Disable Smart Fan
→← :Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc .

5.5 Chipset Menu

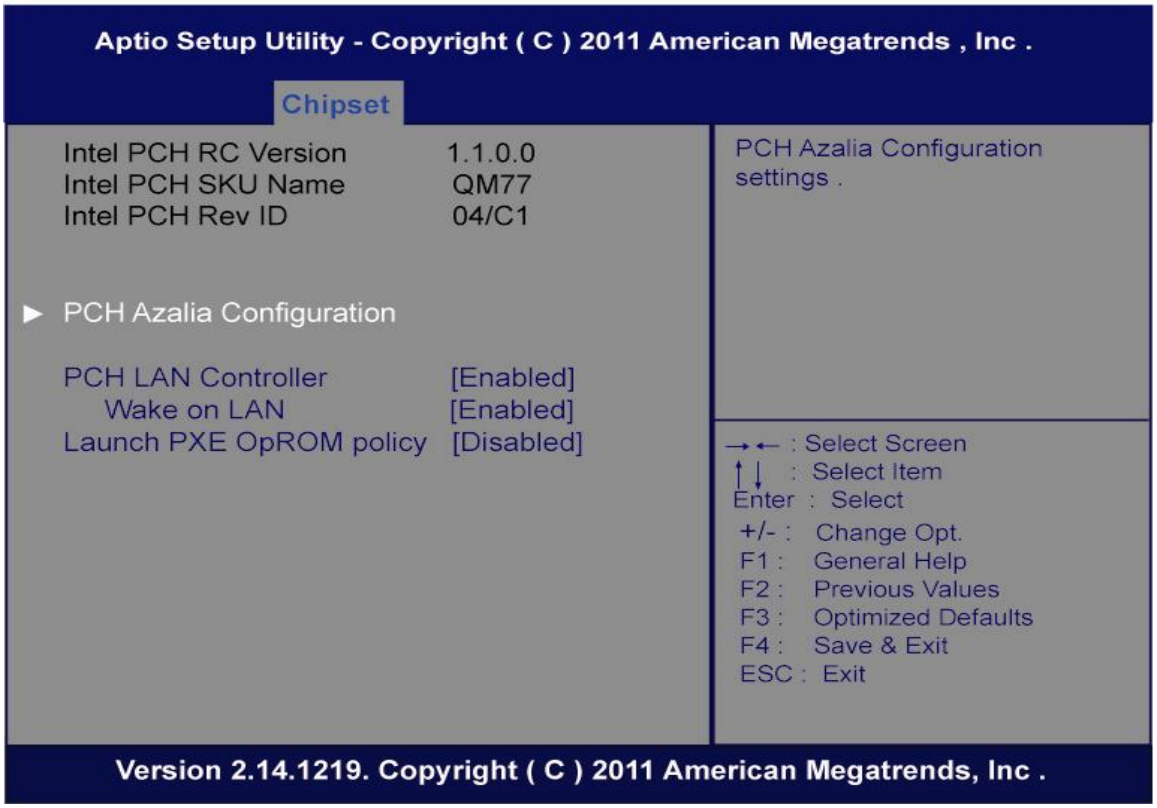
he Chipset menu allows users to change the advanced chipset settings. You can select any of the items in the left frame of the screen to go to the sub menus:

- **PCH–IO Configuration**
- **System Agent(SA) Configuration**


Aptio Setup Utility - Copyright (C) 2011 American Megatrends , Inc .
Main Advanced Chipset Boot Security Save & Exit
► PCH-IO Configuration
► Syatem Agent (SA) Configuration
PCH Parameters
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc .

- **PCH–IO Configuration**

PCH Azalia Configuration settings


Aptio Setup Utility - Copyright (C) 2011 American Megatrends , Inc .
Chipset
Intel PCH RC Version 1.1.0.0
Intel PCH SKU Name QM77
Intel PCH Rev ID 04/C1
► PCH Azalia Configuration
PCH LAN Controller [Enabled]
Wake on LAN [Enabled]
Launch PXE OpROM policy [Disabled]
PCH Azalia Configuration settings .
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc .

  - **PCH LAN Controller**

    Use this item to enable or disable on board LAN controller

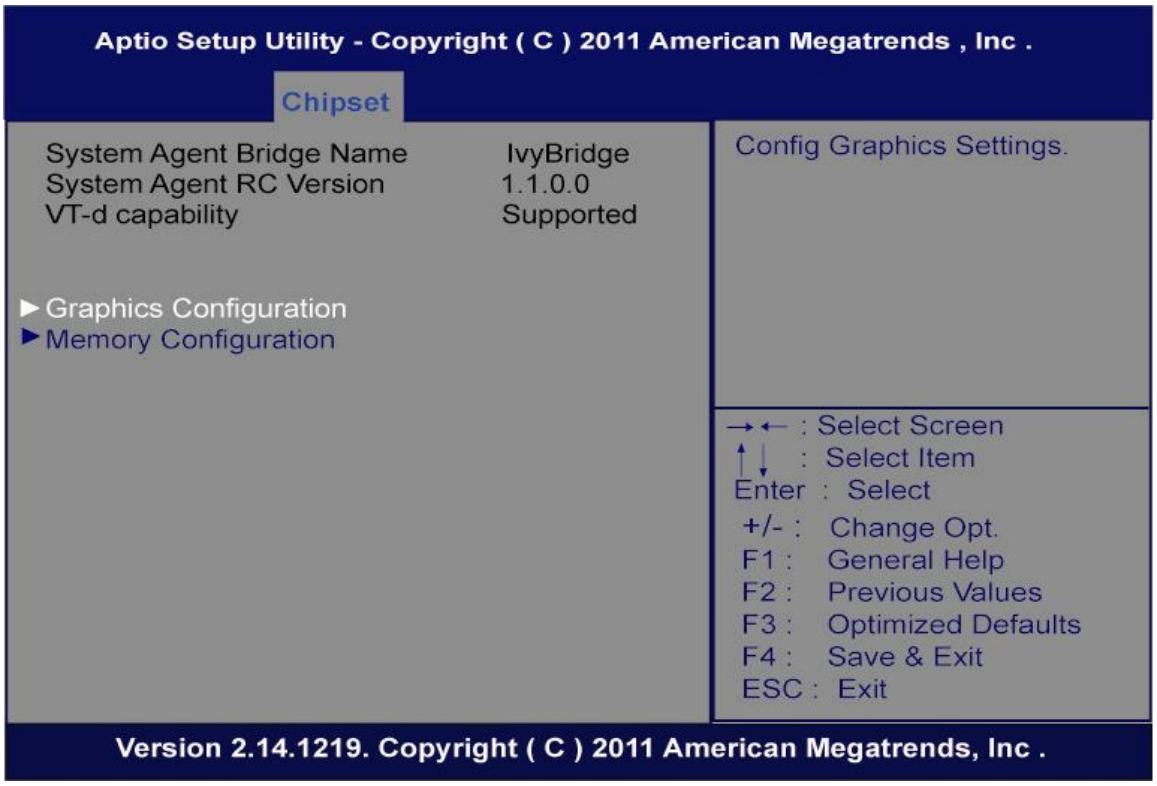
  - **Wake on LAN**

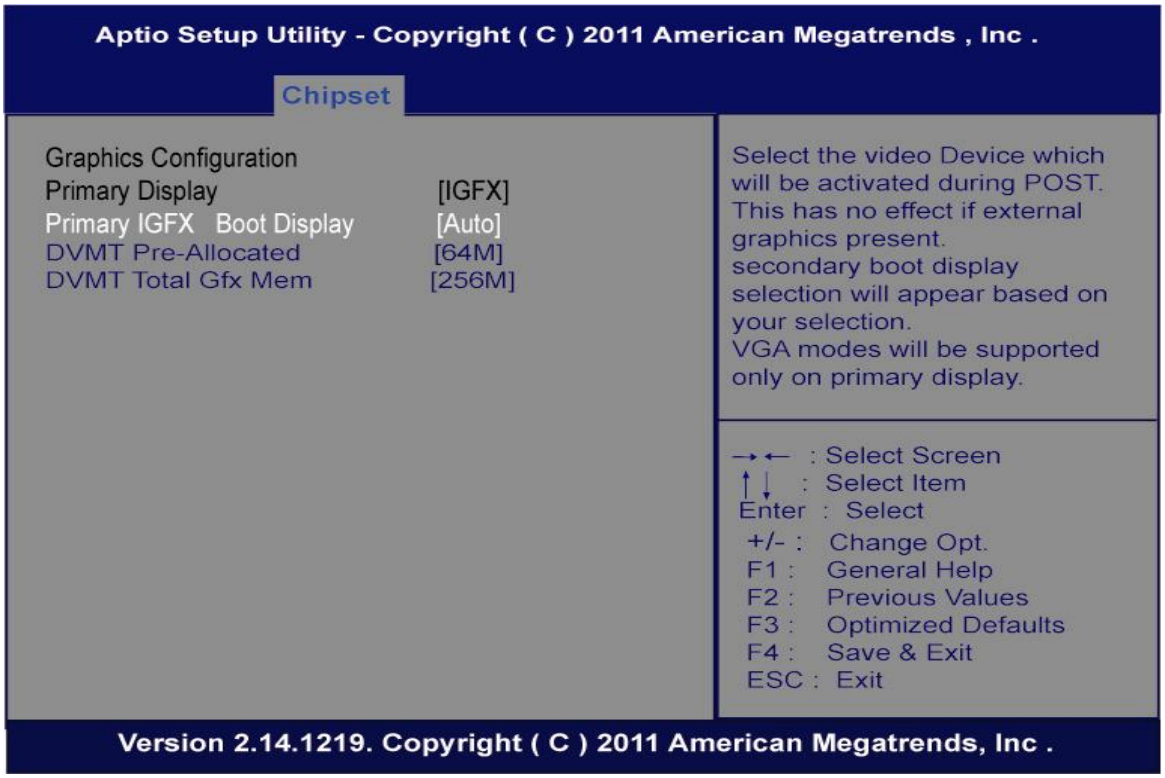
    Use this item to enable or disable Wake on LAN function.

- **Launch PXE OpROM policy**
- **Controls the execution of UEFI and Legacy PXE OpROM.**

- **System Agent(SA) Configuration**

This option allows users to change the integrated graphic device settings.


Aptio Setup Utility - Copyright (C) 2011 American Megatrends , Inc .
Chipset
System Agent Bridge Name IvyBridge
System Agent RC Version 1.1.0.0
VT-d capability Supported
► Graphics Configuration
► Memory Configuration
Config Graphics Settings.
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc .


Aptio Setup Utility - Copyright (C) 2011 American Megatrends , Inc .
Chipset
Graphics Configuration
Primary Display [IGFX]
Primary IGFX Boot Display [Auto]
DVMT Pre-Allocated [64M]
DVMT Total Gfx Mem [256M]
Select the video Device which will be activated during POST. This has no effect if external graphics present.
secondary boot display selection will appear based on your selection.
VGA modes will be supported only on primary display.
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc .

- **Primary IGFX Boot Display**

  Specifies the first initial display from the PCH Digital Display output.

- **DVMT Pre-Allocated**

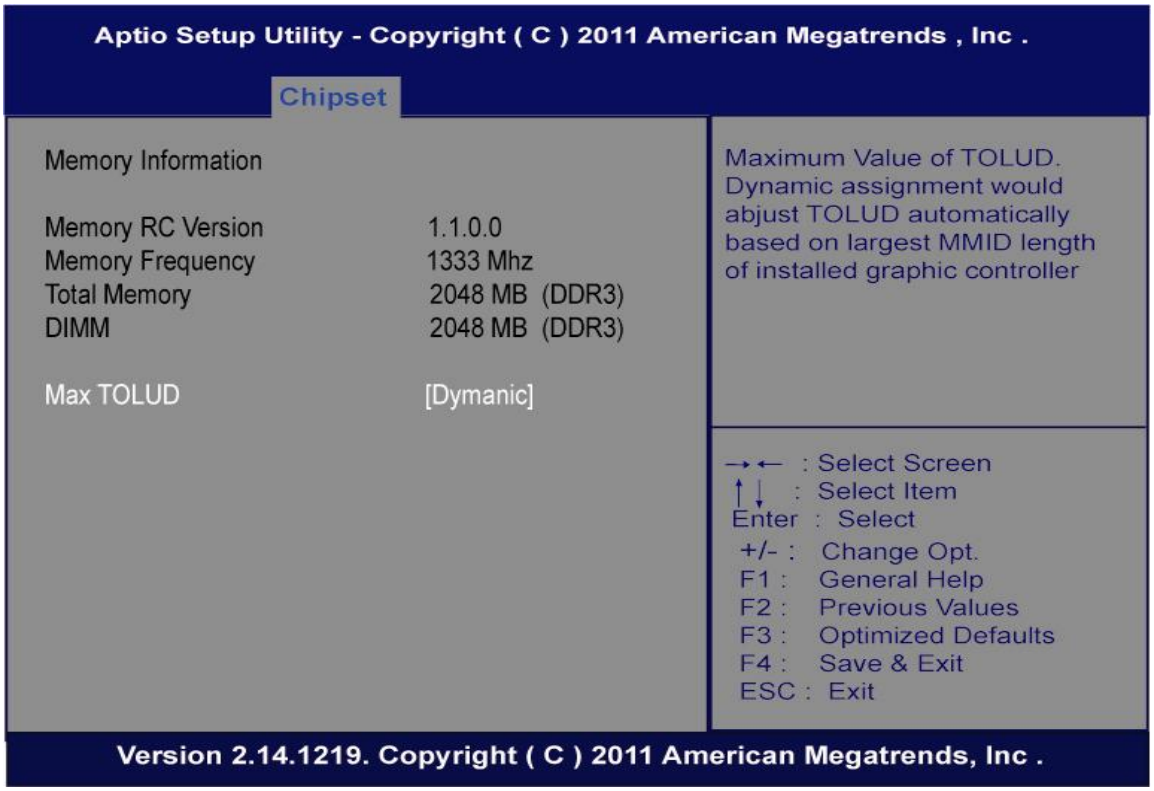
  Pre-allocated memory is the small amount of system memory made available at boot time by the system BIOS for video. Pre-allocated memory is also known as locked memory. This is because it is "locked" for video use only and as such, is invisible and unable to be used by the operating system.

- **DVMT Total GFx Mem.**

  Allow you to allocate a fixed amount of system memory as graphics memory. Here are the options for your selection, 128MB, 256MB and Maximum DVMT

- **Memory Information**

This screen shows the memory information.


Aptio Setup Utility - Copyright (C) 2011 American Megatrends , Inc .
Chipset
Memory Information
Memory RC Version 1.1.0.0
Memory Frequency 1333 Mhz
Total Memory 2048 MB (DDR3)
DIMM 2048 MB (DDR3)
Max TOLUD [Dymanic]
Maximum Value of TOLUD. Dynamic assignment would abjust TOLUD automatically based on largest MMID length of installed graphic controller
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc .

- **Max TOLUD**

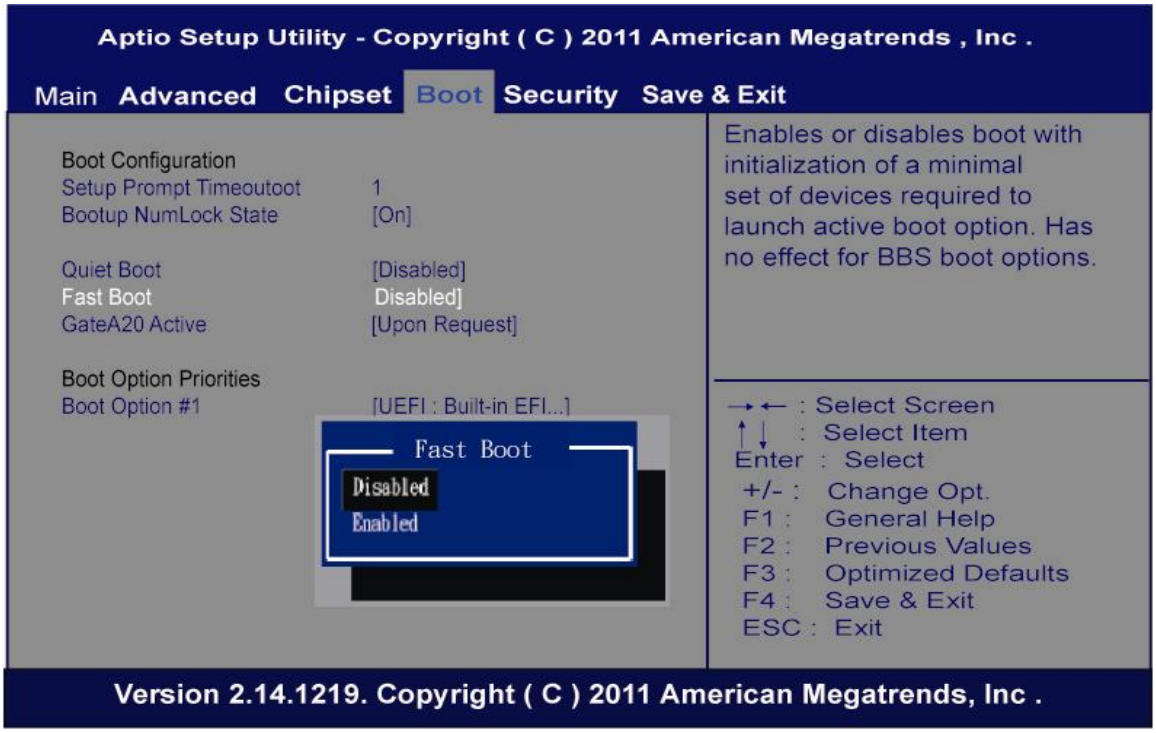
  This item allows you to set Maximum Value of TOLUD

Note: This feature is only available on Windows XP OS

5.6 Boot Menu

The Boot menu allows users to change boot options of the system. You can select any of the items in the left frame of the screen to go to the sub menus:

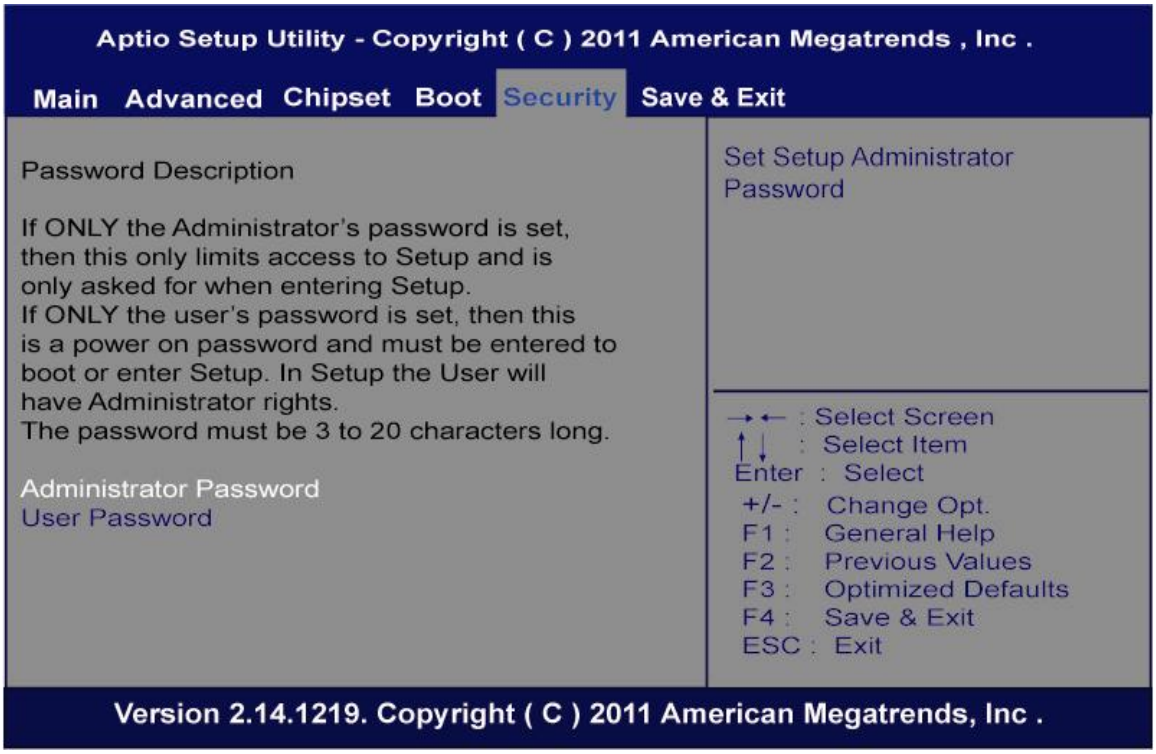
- **Setup Prompt Timeout**
- **Boot up Mum Lock State**
- **Quiet Boot**
- **Fast Boot**
- **GateA20 Active**
- **Boot Option Priorities**


Aptio Setup Utility - Copyright (C) 2011 American Megatrends , Inc .
Main Advanced Chipset Boot Security Save & Exit
Boot Configuration
Setup Prompt Timeoutoot 1
Bootup NumLock State [On]
Quiet Boot [Disabled]
Fast Boot Disabled]
GateA20 Active [Upon Request]
Boot Option Priorities
Boot Option #1 [UEFI : Built-in EFI...]
Fast Boot
Disabled
Enabled
Enables or disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc .

- **Setup Prompt Timeout**
  Set the Timeout for wait press key to enter Setup Menu
- **Boot up Mum Lock State**
  Use this item to select the power-on state for the Mum Lock. The default setting is on.
- **Quiet Boot**
  Use this item to enable or disable the Quite Boot state. The default setting is disabling.
- **Fast Boot**
  Use this item to enable or disable the Fast Boot state. The default setting is disabling
- **Boot Option Priorities**
  Specifies the overall boot order from the available device

5.7 Security Menu

The Security menu allows users to change the security settings for the system.


Aptio Setup Utility - Copyright (C) 2011 American Megatrends , Inc .
Main Advanced Chipset Boot Security Save & Exit
Password Description
If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup.
If ONLY the user's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights.
The password must be 3 to 20 characters long.
Administrator Password
User Password
Set Setup Administrator Password
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc .

- **Administrator Password**

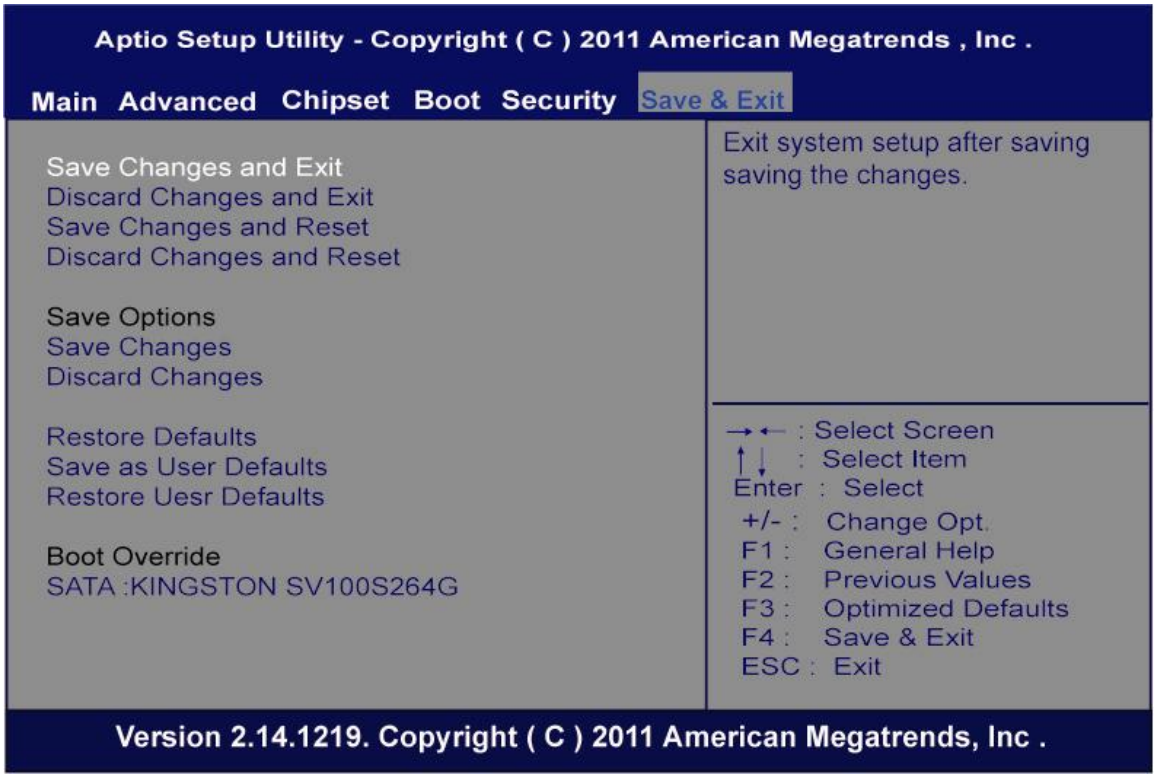
  This item indicates whether an administrator password has been set. If the password has been installed, Installed displays. If not, Not Installed displays.

- **User Password**

  This item indicates whether a user password has been set. If the password has been installed, Installed displays. If not, Not Installed displays.

5.8 Save & Exit Menu

The Save & Exit menu allows users to load your system configuration with optimal or failsafe default values.


Aptio Setup Utility - Copyright (C) 2011 American Megatrends , Inc .
Main Advanced Chipset Boot Security Save & Exit
Save Changes and Exit
Discard Changes and Exit
Save Changes and Reset
Discard Changes and Reset
Save Options
Save Changes
Discard Changes
Restore Defaults
Save as User Defaults
Restore Uesr Defaults
Boot Override
SATA :KINGSTON SV100S264G
Exit system setup after saving saving the changes.
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc .

- **Save Changes and Exit**

  When you have completed the system configuration changes, select this option to leave Setup and return to Main Menu. Select Save Changes and Exit from the Save & Exit menu and press <Enter>. Select yes to save changes and exit.

- **Discard Changes and Exit**

  Select this option to quit Setup without making any permanent changes to the system configuration and return to Main Menu. Select Discard Changes and Exit from the Save & Exit menu and press <Enter>. Select Yes to discard changes and exit.

- **Save Changes and Reset**

  When you have completed the system configuration changes, select this option to leave Setup and reboot the computer so the new system configuration parameters can take effect. Select Save Changes and Reset from the Save & Exit menu and press <Enter>. Select Yes to save changes and reset.

- **Discard Changes and Reset**

  Select this option to quit Setup without making any permanent changes to the system configuration and reboot the computer. Select Discard Changes and Reset from the Save & Exit menu and press <Enter>. Select Yes to discard changes and reset.

- **Save Changes and Reset**

  When you have completed the system configuration changes, select this option to save changes. Select Save Changes from the Save & Exit menu and press <Enter>. Select Yes to save changes.

- **Discard Changes and Reset**

  Select this option to quit Setup without making any permanent changes to the system configuration. Select Discard Changes from the Save & Exit menu and press <Enter>. Select Yes to discard changes.

- **Save Changes**

  When you have completed the system configuration changes, select this option to save changes. Select Save Changes from the Save & Exit menu and press <Enter>. Select Yes to save changes.

- **Discard Changes**

  Select this option to quit Setup without making any permanent changes to the system configuration. Select Discard Changes from the Save & Exit menu and press <Enter>. Select Yes to discard changes.

- **Restore Defaults**

  It automatically sets all Setup options to a complete set of default settings when you select this option. The Optimal settings are designed for maximum system performance, but may not work best for all computer applications. In particular, do not use the Optimal Setup options if your computer is experiencing system configuration problems. Select Restore Defaults from the save & Exit menu and press <Enter>.

- **Save as User Defaults**

  Select this option to save system configuration changes done so far as User Defaults. Select Save as User Defaults from the Save & Exit menu and press <Enter>.

- **Restore User Defaults**

  It automatically sets all Setup options to a complete set of User Defaults when you select this option. Select Restore User Defaults from the Save & Exit menu and press <Enter>.

MEMO:

APPENDIX A
REFERENCE DOCUMENTS

Document	Document No./Location
Digital Signage Open Pluggable Specification	324427
JAE TX24/TX25 connector product brief	http://jae-connectors.com/en/pdf/2008-40-TX24TX25.pdf
JAE plug connector details and drawing	http://jae-connectors.com/en/product_en.cfm?l_code=EN&series_code=TX24/TX25&product_number=TX25-80P-LT-H1E
JAE receptacle connector details and drawing	http://jae-connectors.com/en/product_en.cfm?l_code=EN&series_code=TX24/TX25&product_number=TX24-80R-LT-H1E

MEMO:

APPENDIX B
WATCH DOG TIMER

Watchdog Timer Setting

After the system stops working for a while, it can be auto-reset by the Watchdog Timer. The integrated Watchdog Timer can be set up in the system reset mode by program.

Using the Watchdog Function Start

1.Enable configuration(Following is example to enable configuration by using debug)

-O 2E 87

-O 2E 87

2. Select Logic device:

-O 2E 07

-O 2F 07

3. WDT Device Enable

-O 2E 30

-O 2F 01

4. Activate WDT:

-O 2E F0

-O 2F 80

5. Set base timer:

-O 2E F6

-O 2F 0A ➔Set Reset Time (Ex. A: 10 Sec)

6. Set timer unit

-O 2E F5

-O 2F 71(1: Sec ; 9: Minute)

MEMO:

APPENDIX C
iAMT SETTINGS

The Intel® Active Management Technology (Intel® iAMT) has decreased a major barrier to IT efficiency that uses built-in platform capabilities and popular third-party management and security applications to allow IT a better discovering, healing, and protection their networked computing assets.

In order to utilize Intel iAMT you must enter the ME BIOS (CTRL + P during system startup), change the ME BIOS password, and then select "Intel® iAMT" as the manageability feature.

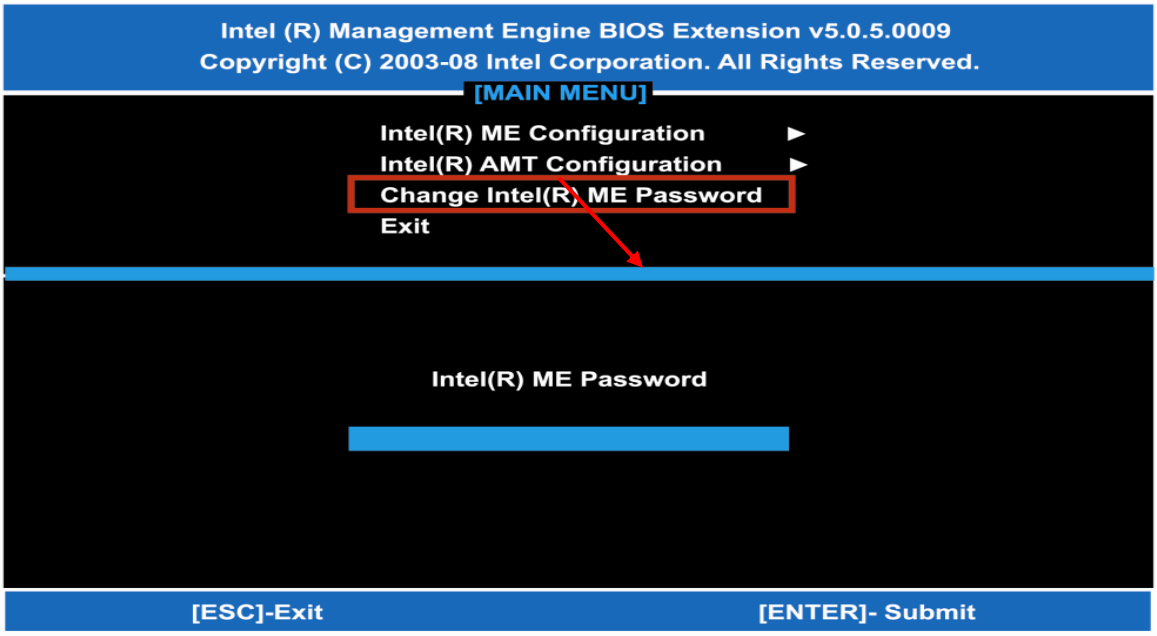
➢ C.1 Entering MEBx

1. You must go to BIOS TO start iAMT function.
2. Exit from BIOS after starting iAMT, and press Ctrl+P to enter MEBx Setting.

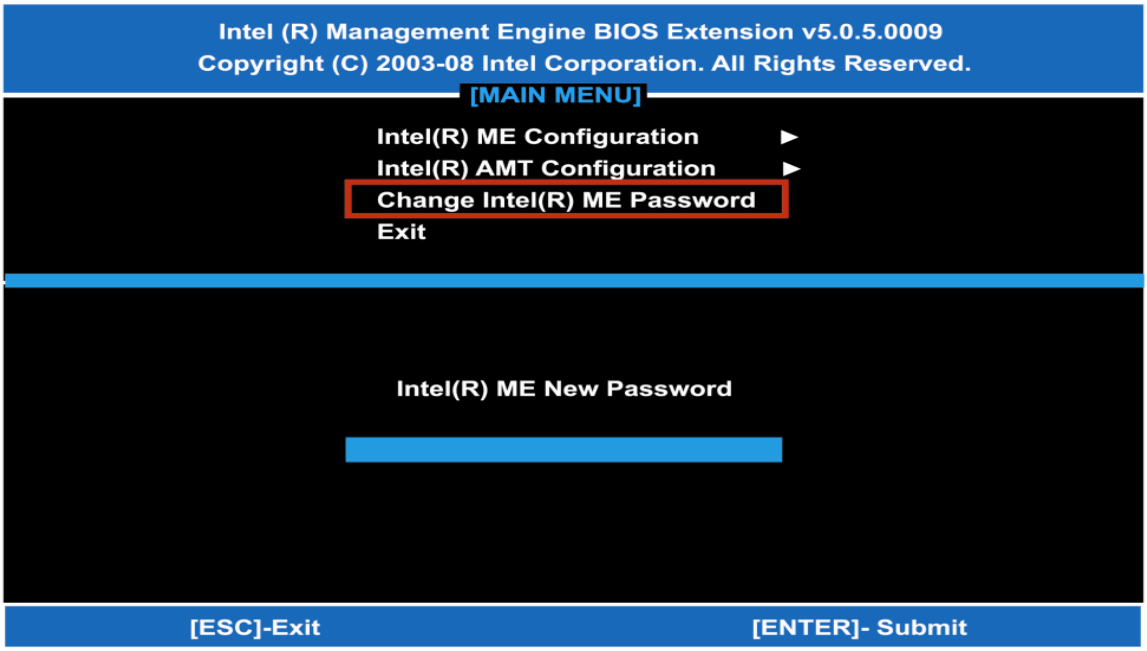
   It is better to press Ctrl+P before the screen popping out.

➢ C.2 Set & Change Password

You will be asked to set a password when first log in. The default password is 'admin'.



- **You will be asked to change the password before setting ME**



- **You must confirm your new password while revising. (as Remark 1)**

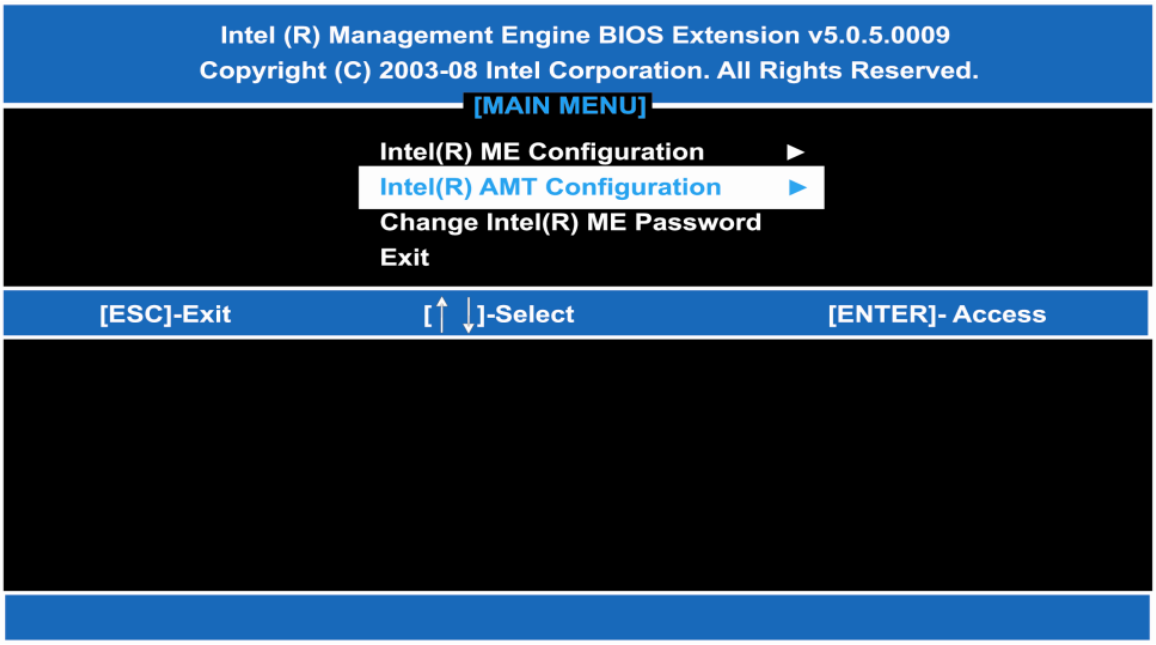
The new password must contain:(example: !!11qqQQ) (default value)Eight characters

- **One upper case**
- **One lower case**
- **One number**
- **One special symbol, such as ！、$ or ； ，(、" , excepted)**

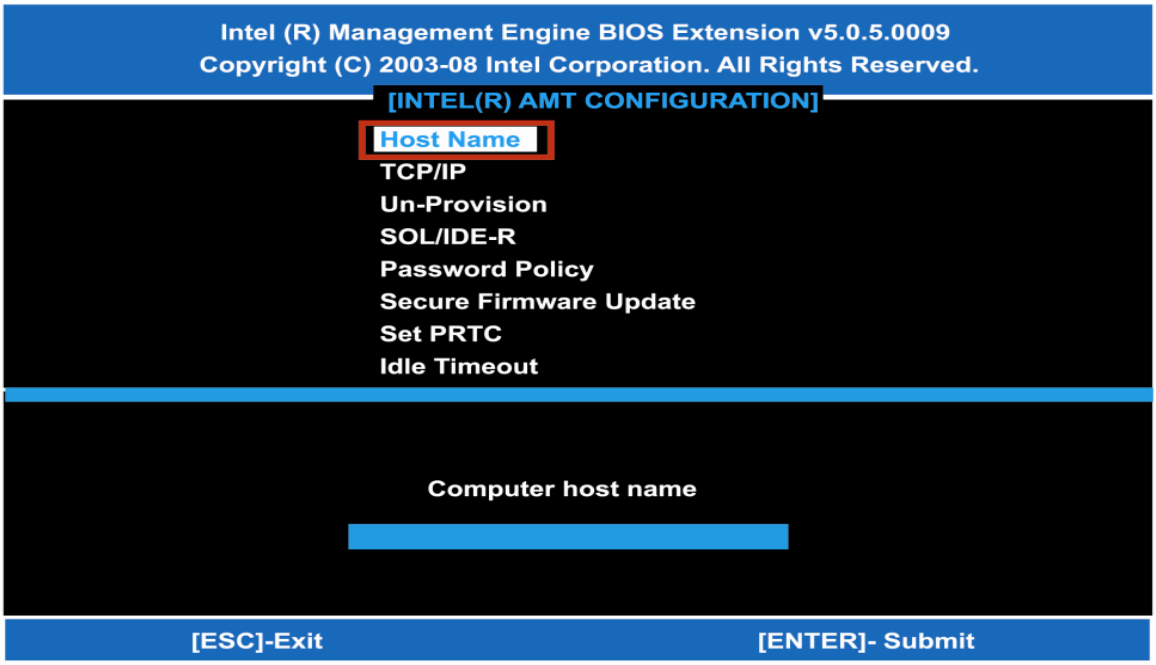
Underline (_) and space are valid characters for password, but they won't make higher complexity.

➢ C.3 Intel® iAMT Settings

Select Intel® iAMT Configuration and press <ENTER>.

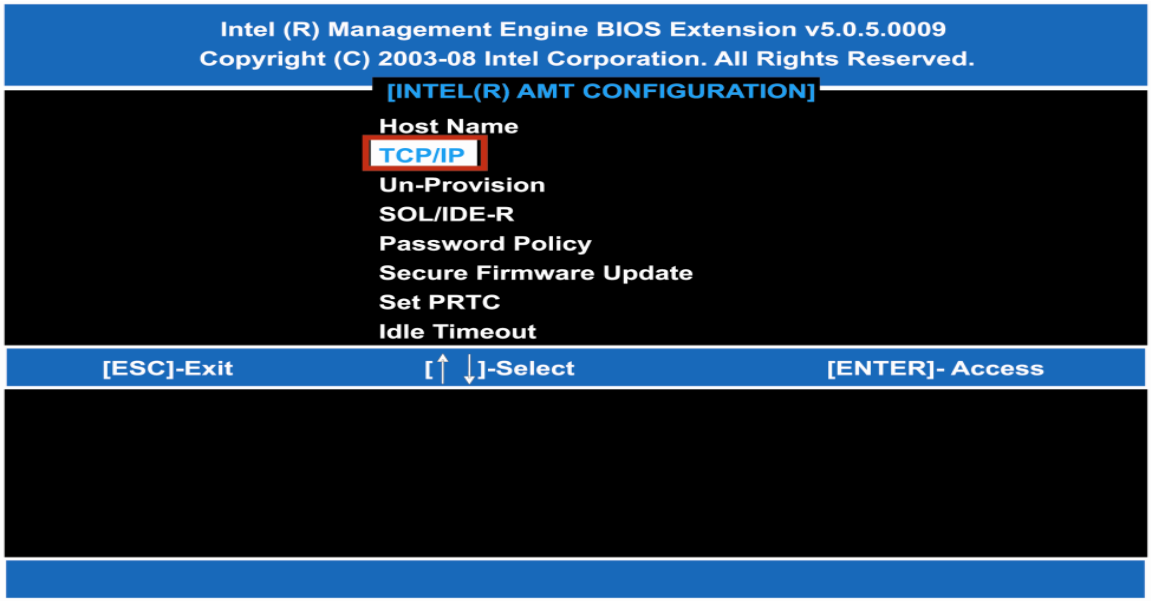


1 Key in the Host Name. If Intel® iAMT set to 'DHCP', the Host name must be identical to the operating system mechanic.



(3-1)

2 Select TCP/IP to get into Network interface, and set it to 'ENABLED'; into DHCP Mode, and set it to 'DISABLED' (as Remark 2) ; into Domain name, and set the Intel Management Engine domain name, such as 'AMT.intel.com'.

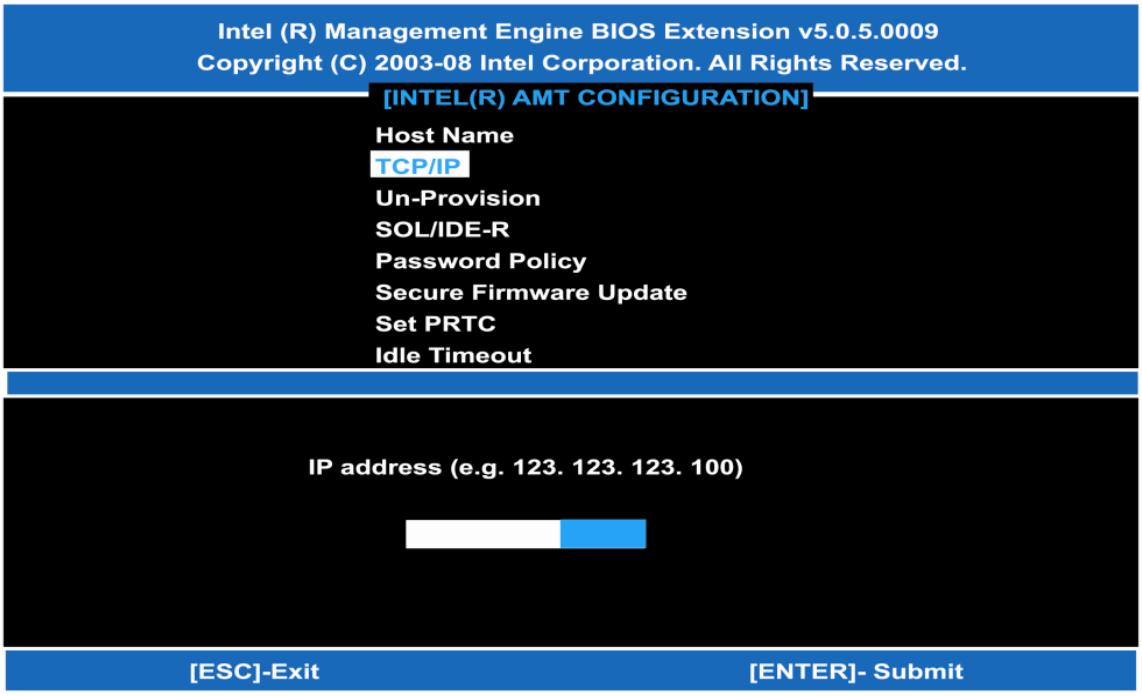


(3-2)

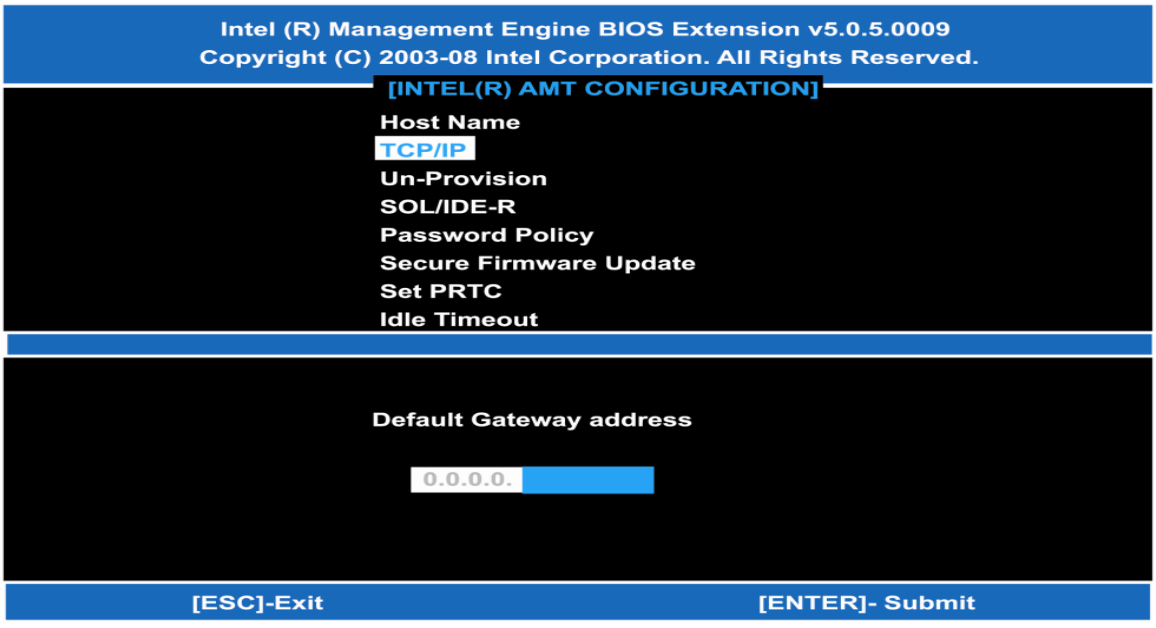
You can make the following settings:

Remark 2 DHCP Mode 'DISABLED': if DHCP Mode is disabled,

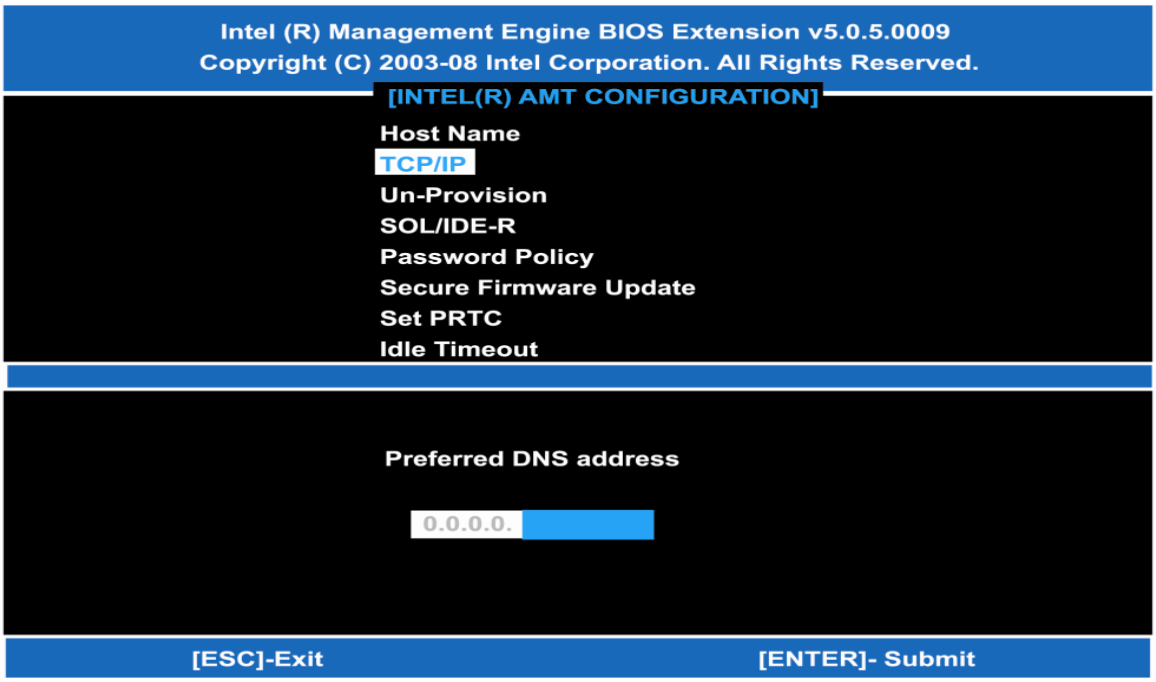
- **IP address**



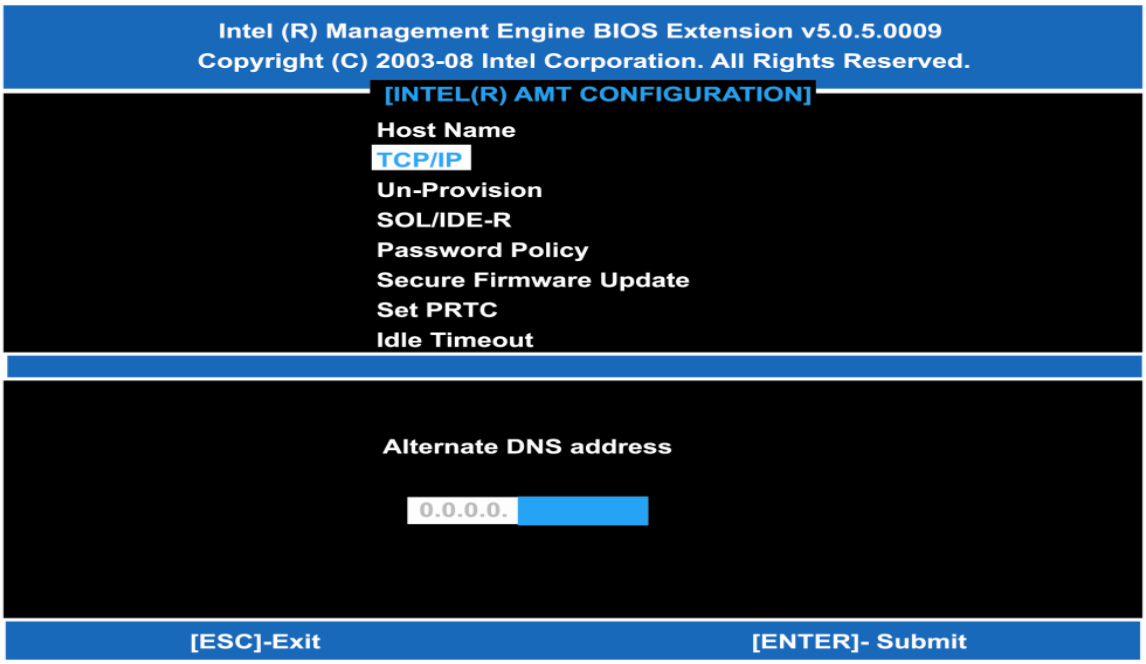
- **Subnet mask**



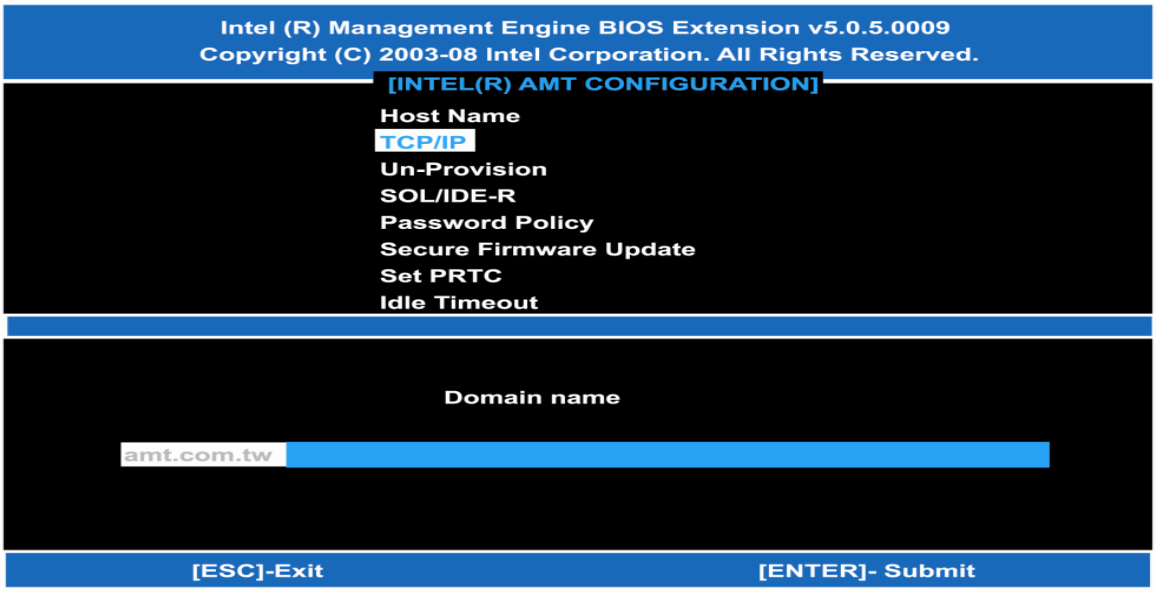
- **Preferred DNS address**



- **Alternate DNS address**



- **Domain name**

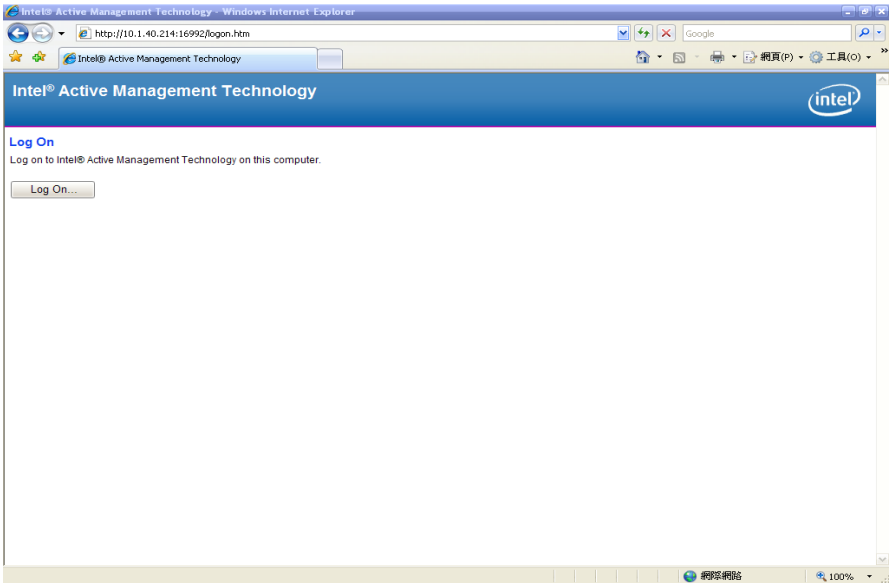


4.Exit from MEBx after completing the iAMT settings.

➢ C.4 iAMT Web Console

1.From a web browser, please type http:///(IP ADDRESS):16992, which connects to iAMT Web.

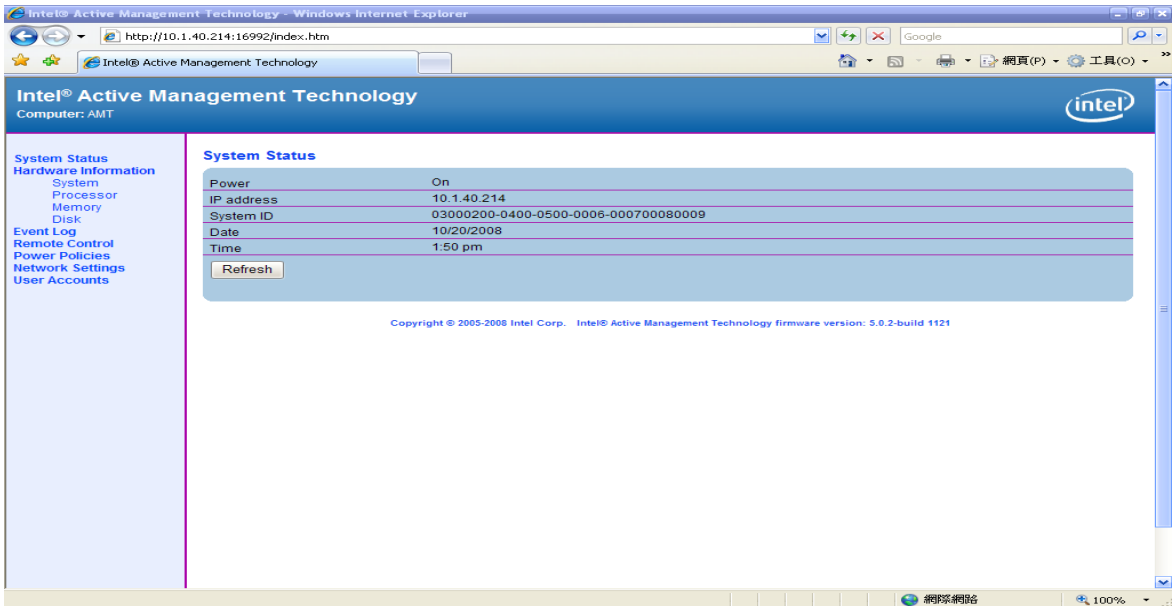
Example: http://10.1.40.214:16992


Intel® Active Management Technology - Windows Internet Explorer
http://10.1.40.214:16992/logon.htm
Intel® Active Management Technology
Intel® Active Management Technology
Log On
Log on to Intel® Active Management Technology on this computer.
Log On...

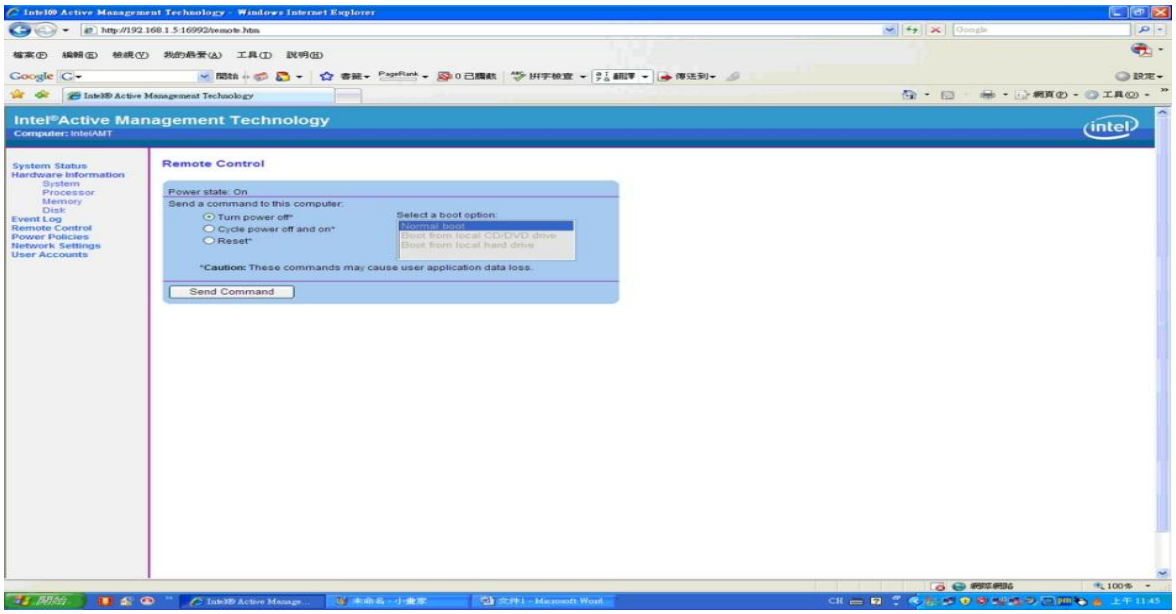
2 To log on, you will be required to type in username and password for access to the Web. USER: admin (default value)

PASS: (MEBx password)

3. Enter the iAMT Web.



4 Click Remote Control, and select commands on the right side.



5. When you have finished using the iAMT Web console, close the Web browser